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U.S. Air Force Environmental Restoration Contracting Strategies Analysis

January 1992

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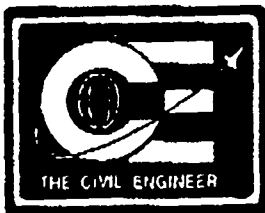
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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

29 JAN 1992

REPLY TO
ATTN OF: CE

SUBJECT: Environmental Restoration Contracting Strategies Analysis

TO Remedial Project Managers & Restoration Managers

1. This analysis of contracting strategies has been produced to improve the Air Force hazardous waste cleanup process. It is a compendium of contracting experiences.

2. I encourage you to use this analysis to accelerate project completion and to drive down costs. Together, we need to improve our performance to meet the Air Force goal to "restore at least 10% of our hazardous waste sites annually with all sites completed by 2000."

Joseph A. Ahearn

JOSEPH A. AHEARN
Major General, USAF
The Civil Engineer

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EXECUTIVE SUMMARY

This document has been developed as an overview-level document to aid U.S. Air Force (USAF) remedial project managers (RPMs) and contract personnel involved in contracting environmental restoration and remediation work. Specifically, this document provides guidance for the decision process used in selecting the appropriate type of contract and in evaluating associated considerations for performing environmental studies, design, monitoring, and cleanup activities under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA).

The first two sections of the document provide background regarding environmental activities and federal legislation and state requirements, a discussion of the key compliance requirements and the remedial action process, and a discussion of basic contract types and mechanisms used by government agencies. This information provides a basis for evaluating decisions to be made and alternatives for contracting the Installation Restoration Program (IRP) work. The third section presents decision analysis and provides a framework to use to establish a set of viable contract type options for a particular stage or phase of environmental work. The fourth section of the document discusses choices and concerns regarding contracting alternatives. The discussion addresses the remedial action (IRP) process; alternative approaches to contract work for stages of the IRP process including important considerations, merits and potential pitfalls of each approach; contracting considerations relative to contracting mechanism, budget, schedule, and risk to client and contractor; and a summary of experiences of service and federal agencies contracting environmental work.

This document is not a "quick-fix" for problems related to environmental contracts. In dealing with such contracts, considerations must include more than deciding which type of contract or mechanism is necessary relative to a specific stage or phase of IRP work. Typically, there is greater uncertainty in environmental work than in standard investigative, design, and construction work. In addition, the level of uncertainty varies with the stages and phases of the work. Therefore, the selection and implementation of the most suitable type of contract must allow for variation in contracting CERCLA work. The appropriate use of contract mechanisms and contractors for various stages of IRP work requires making choices for which there will be advantages and disadvantages.

ABBREVIATIONS

A&E	architectural and engineering
ACASS	Architect Engineer Contract Administrative Support System
AFCEE	Air Force Center for Environmental Excellence
AFPO	Air Force Project Order
AMC	Army Materials Command
ARAR	applicable or relevant and appropriate requirement
ARCS	Alternative Remedial Contracting Strategy
BOA/TOA	basic ordering agreement/task ordering agreement
BRAC	Base Realignment and Closure
CBD	Commerce Business Daily
CE	Corps of Engineers
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CETHA	Corps of Engineers Toxic and Hazardous Material Agency (formerly U.S. Army Toxic and Hazardous Materials Agency [USATHMA])
CO	contracting officer
COTR	Contracting Officer's Technical Representative
CPAF	cost plus award fee
CPFF	cost plus fixed fee
CPIF	cost plus incentive fee
CPM	Contracting Project Manager
DD	decision document
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOL	U.S. Department of Labor
EMO	Environmental Management Operations
EPA	U.S. Environmental Protection Agency
ERCS	Emergency Response Cleanup Services
ESR	Environmental Restoration Division
ESO	Environmental Services Office
FAR	Federal Acquisition Regulation
FFP	firm fixed price
FFP, LOE	firm fixed price, level-of-effort
FP	fixed price
FPAF	fixed price award fee
FP-EPA	fixed price with economic price adjustment
FPI	fixed price incentive
FUDS	Formerly Used Defense Sites
GAO	Government Accounting Office
GSA	General Services Administration
HAZWRAP	Hazardous Waste Remedial Actions Program
HSD	Human Systems Division
HTW	hazardous and toxic waste
IA	interagency agreements
IDDQ	indefinite delivery, definite quantity
IDIQ	indefinite delivery, indefinite quantity

IRP	Installation Restoration Program
LH	labor hour
LOE	level of effort
MAJCOMS	Major Commands
MIPR	Military Interdepartmental Purchase Request
MOU	memorandum of understanding
MPO	memorandum purchase order
NAVFAC	Naval Facilities Engineering Command
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NFAP	no further action planned
NPL	National Priorities List
OCI	organization conflicts of interest
PA/SI	preliminary assessment/site inspection
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
RD/RA	remedial design/remedial action
RI/FS	remedial investigation/feasibility study
ROD	record of decision
RPM	remedial project manager
SARA	Superfund Amendments and Reauthorization Act
SC	site closeout
SOW	statement of work
T&M	time and materials
TAT	Technical Assistance Team
TEPS	Total Environmental Program Support
TES	Technical Enforcement Support
TOSCA	Toxic Substances Control Act
TPM	Technical Project Manager
USACE	United States Army Corps of Engineers
USAF	U.S. Air Force
UST	Underground Storage Tank
WFO	work for others

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1.0 INTRODUCTION

The U.S. Air Force (USAF) has developed the **Environmental Restoration Contracting Strategies Analysis** to assist its remedial project managers (RPMs) and contract staff involved in contracting environmental restoration work.

The document addresses regulatory issues as well as various contract types and strategies. The document identifies

- the types of contracts and contracting mechanisms
- the contracting approaches available to the USAF
- the contract types and contracting mechanisms being used by various service agencies.

The document includes a discussion of the various contract types; however, it purposely does not include a discussion on the various methods of contracting (i.e., Sealed Bidding, Competitive Negotiation, etc.). The document is intended for use primarily by staff who need a good, basic understanding of contract types in order to conduct the decision analysis necessary to identify the most viable contract type options for a particular phase of an environmental restoration project. It is assumed, once the staff have identified what they consider to be viable contract type options, technical and contractual staff will work in concert to ultimately determine the contract type best suited for the project, and the contracting method to be employed. Therefore, a discussion on contracting methods was felt to be beyond the scope and purpose of this document.

1.1 BACKGROUND

Federal organizations such as the USAF, U.S. Army Corps of Engineers (USACE), CETHA (formerly USATHMA)^(a), and U.S. Environmental Protection Agency (EPA) have experienced difficulties in contracting environmental restoration work, and perhaps more importantly, have had difficulties in effectively executing the work once a contract is in place. Much of the difficulty was related to the contract type, applicability of regulations and provisions, associated contracting mechanisms, and key issues related to environmental work. Matching the appropriate contract types (e.g., fixed price, cost plus fixed fee, etc.) and contract mechanisms to particular stages of environmental work (e.g., PA/SI, RI/FS, RD/RA, and SC)^(b) has not been

(a) CETHA - Corps of Engineers Toxic and Hazardous Material Agency
USATHMA - U.S. Army Toxic and Hazardous Material Agency

(b) PA/SI - preliminary assessment/site inspection
RI/FS - remedial investigation/feasibility study
RD/RA - remedial design/remedial action
SC - site closeout

pursued by government agencies because of the well entrenched past practices of each government agency. To the agencies' credit, each has found ways to make a single contract type work, though sometimes inefficiently, by designing their organizational structure to accommodate the contract type or providing numerous contractor work options or restrictions to provide some flexibility while maintaining control during the course of the work. These solutions, though often successful, are sometimes cumbersome and inefficient for accomplishing federal agency work scope objectives.

The USAF recognizes that a more effective means of implementing, and managing Installation Restoration Program (IRP) projects would begin with selecting the most appropriate contract type for a particular stage or stages of environmental restoration work. The USAF also recognizes that work contracted was impacted differently by federal regulations depending on the scope of the environmental work (e.g., paper studies and data collection versus cleanup versus construction). For these reasons, the USAF set out to develop the **Environmental Restoration Contracting Strategies Analysis** primarily for USAF project managers, but also for its respective contracting officers and client/contractor liaison personnel in service agencies. This document represents the results of the USAF effort.

To produce the document, the USAF has

- gathered information and prepared an outline of topics the document should contain
- developed a survey questionnaire for interviews with agencies
- conducted interviews with federal agencies and service agencies regarding contracting and conducting IRP work
- compiled, analyzed, and summarized the results of the interview survey
- developed strategies for contracting environmental restoration projects based on the data obtained.

Much of the information for developing the document was obtained from a few published sources, but a substantial portion of background information was obtained from interviews with the service agencies. There are sections for: an introduction, contract types, decision process for selecting contract types, summary, and appendixes. The appendixes include descriptions and discussions of regulations and provisions and their key issues and applicability to contracting and performing environmental work, summaries and observations of the site visits/interviews, and the site survey questionnaire.

Appendix A presents the key federal acts that come into play when contracting for environmental restoration work, including the Brooks Act, and outlines key

requirements, applicability, and key issues. The Appendix does not, however, provide guidance as to when the requirements should be applied. It was noted during the site visits that there are differing interpretations and, thus, differing applications of the requirements. Because of differing interpretations, it was decided that the document should avoid providing guidance on when to apply the requirements of these various acts.

The survey interviews included visits with project managers, contracting officers, and program managers with experience in contracting and doing IRP work. The agencies contacted include CETHA; EPA; Environmental Management Operations (EMO); Hazardous Waste Remedial Action Program (HAZWRAP); the Air Force Center for Environmental Excellence (AFCEE), formerly Human Systems Division (HSD); and USACE. The results were analyzed to find differences and commonalities in experiences and preferences in contracting and managing IRP work. Special emphasis was given to the various stages of IRP work and the uncertainty associated with that work stage or phases within a stage. The interviews elicited the perceptions and experiences of agency staff with regard to contract types in relation to stages of work, character of work, uncertainty of site conditions and characteristics, regulations and provisions, and other contract components or issues.

The final content and presentation of the document evolved as additional information and feedback were obtained from published and unpublished information, interviews, discussions, data analysis, and peer review comments of all agency participants and the preparers of this document.

1.2 ENVIRONMENTAL RESTORATION ACTIVITIES

The Defense Environmental Restoration Program (DERP) is the U.S. Department of Defense (DOD) program to identify, investigate, and cleanup past disposal sites. Each of the armed services, including the USAF, is implementing the IRP to address hazardous waste contamination of sites on their properties.

1.2.1 Federal Legislation

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) of 1986 established a process to cleanup hazardous waste disposal and spill sites nationwide. The Defense Environmental Restoration Program (DERP) became law as SARA Section 211. The IRP is a subcomponent of DERP that addresses the identification, investigation, and cleanup of contamination from hazardous substances and pollutants associated with past practices.

The National Oil and Hazardous Substances Pollution Contingency Plan, commonly referred to as the National Contingency Plan (NCP) was developed by the U.S. Environmental Protection Agency (EPA) and addresses the responsibilities, organization, preparedness, and response to releases and potential releases of oil and hazardous substances. Subpart F establishes

procedures for actions in response to releases or threatened releases of hazardous substances. IRP sites are generally subject to the requirement of this subpart.

1.2.2 State Requirements

The USAF is the lead federal agency in the cleanup of its sites whether or not they are listed on the National Priorities List (NPL) maintained by EPA. For sites on the NPL, remedial actions selected by the Air Force are subject to approval by the EPA. For cleanup of non-NPL sites, the Air Force is the final decision authority. However, the cleanup of non-NPL sites should be conducted in close coordination with state regulatory agencies and EPA regional offices. States may have enacted legislation similar to the federal requirements or may have full delegation of authority from EPA for hazardous waste corrective actions. These state requirements should be accommodated during the IRP process while maintaining consistency with the requirements of CERCLA and the NCP.

1.2.3 Key Compliance Requirements

The objectives of the Air Force IRP are included in the overall objectives of the DERP as stated in SARA Section 211: "The *identification, investigation, research and development, and cleanup* of contamination from hazardous substances, pollutants, and contaminants." A fourth objective, *closeout*, is added to those highlighted above to emphasize the importance of completing the IRP. Closeout implies that all necessary response actions have been taken, documented, and accepted by the appropriate authorities. Response actions include all actions from site identification through closeout. Three general classes of response actions are included in the IRP: remedial action processes, removals, and monitoring. These may be implemented individually or in combination with one another to address the needs of specific sites. Response actions are frequently accomplished through contract services with management and oversight provided by Major Commands or installations.

Remedial Action Processes

The remedial action process is the primary response action. Actions in this process may generally be grouped into four functional areas:

- The *Preliminary Assessment/Site Inspection (PA/SI)* stage - Sites are identified and reviewed to determine 1) whether they merit further consideration in the IRP, and 2) whether they merit placement on the NPL by EPA. A decision is made at the end of the PA/SI stage on which subsequent actions should be taken.
- The *Remedial Investigation/Feasibility Study (RI/FS)* stage - This stage consists of concurrent activities to evaluate the site and identify appropriate remedial actions. During the remedial investigation portion of the RI/FS, sites are investigated to 1) determine the threat to public health and the environment, 2) characterize the nature and extent of contamination at

the site, 3) perform a baseline risk assessment, 4) determine Applicable or Relevant and Appropriate Requirements (ARARs) for contaminants present at the site, and 5) perform waste treatability tests for the site (if necessary). The objectives of the feasibility study are to identify and analyze alternative remedial actions and to select the alternative that will best mitigate the hazards in accordance with criteria set forth in SARA and the NCP. The formal document presenting the selected alternative is a decision document for non-NPL sites and a record of decision (ROD) for NPL sites.

- The *Remedial Design/Remedial Action (RD/RA)* stage - This stage includes the design and implementation of the remedial action alternative selected in the RI/FS stage and documented in the decision document DD/ROD. For NPL sites, the Air Force selects a remedial action subject to the approval of the EPA. This stage also includes the continuing operation of treatment equipment after initial startup and any post-project activities necessary for verification of cleanup and long-term monitoring if contaminants are not entirely removed or stabilized.
- The *Site Closeout (SC)* stage - This stage involves making and documenting a decision to close out IRP actions and informing appropriate authorities of that decision.

Removals

Removals provide a means of responding to an immediate threat or of implementing relatively simple response actions that do not require detailed planning efforts. They may either supplement or, in certain cases, take the place of remedial action processes. Removals may involve a wide variety of actions, including those that remove a hazardous substance, isolate a community from potential impact, or monitor and assess the impact of the removal on the contaminant source, the public, or the environment.

Monitoring

Monitoring may be implemented when it is not certain whether there is a threat posed by the site. The monitoring should address the concentrations and spread of contaminants from a site. *Interim monitoring* may be implemented during the time between the investigation and cleanup stages of the IRP to determine the need for modification of either the design or schedule for remedial actions. *Long-term monitoring* may be implemented in place of other response actions at a site or concurrent with implementation of a response action to determine the effectiveness of the action. Monitoring should be conducted for fixed intervals followed by a decision whether to continue monitoring or to implement another response action.

1.3 ORGANIZATION OF THE DOCUMENT

Section 2 of this document discusses Contract Types, Section 3 describes the Decision Process, and Section 4 is the Summary. Also in this document is Appendix A, which describes key acts, federal regulations, and related issues; Appendix B, which discusses the site visits and observations; Appendix C, which contains the sample site visit questionnaire; and Appendix D is the glossary.

2.0 CONTRACT TYPES

A number of different contract types and contracting mechanisms are used by various government agencies to acquire the large variety and volume of supplies and services needed in their operations. The contract types and mechanisms are discussed in this section, and can also be found in the Federal Acquisition Regulations (FAR) Part 16 entitled "Types of Contracts." The most common issues that arise when contracting for environmental cleanup work are discussed in Section 4 of the document. Key federal acts and regulations are presented in Appendix A.

2.1 CATEGORIES OF CONTRACTS

Contract types fall into two major categories--fixed price and cost-reimbursement--and are most notably distinguished from one another on the basis of the amount of risk associated with the costs of performance assumed by or allocated to the parties. Contractors assume the greatest amount of risk under fixed-price contracts because they are responsible for the costs of performance. Under cost-reimbursement contracts, the government assumes the risk for the costs of performance. The most frequently used contract types and mechanisms are presented in Table 2.1. A brief description of each type is provided, along with examples of the types of supplies/services for which they are used to acquire, and the advantages and disadvantages of each. The table is arranged so the contract type most preferred by the government (i.e., minimal risk to the government) appears first, and the least preferred contract type is last.

Fixed-price contracts typically require the contractor to perform the service or provide the product or supplies for a fixed amount of money. Under these types of contracts, all of the risks for the costs associated with producing the product or providing the service are assumed by the contractor because the product or service must be delivered for the established price regardless of its ultimate, actual cost. If the contractor's actual costs to provide the service or product increase, profit decreases. Conversely, if the actual costs decrease, profit increases. Fixed-price contracts are preferred by the government for several reasons. They create an incentive that motivates the contractor to operate efficiently and effectively and to control costs because the price is fixed and the product/service must be delivered for that price. Fixed-price contracts are usually the least time consuming to place and administer. These contracts also require fewer contract administration and oversight activities because the assurance that the contractor operates efficiently and effectively while controlling costs is provided by virtue of the contract type. Fixed-price contracts work best when 1) competition exists, 2) reasonable prices can be established, and 3) detailed specifications of the product or a detailed statement of work of the services to be provided can be developed.

Cost-reimbursement contracts usually involve the payment of all costs considered allowable that are associated with the delivery of the supplies or services, and an agreed upon, pre-established amount of profit or fee (IAW FAR Part 31). Costs are paid up to a predetermined, maximum contract

amount that is established on the basis of the contractor's estimate of the costs expected to be incurred to deliver the supplies/service plus the fee or profit. The risks associated with producing the supplies or performing the services under this type of contract are assumed by the government because there is no guarantee that the product or service will be delivered for the amount estimated. Also, there is no requirement that the contractor deliver the product/service if its cost exceeds the estimate.

Cost-reimbursement contracts are not the most preferred by the government for several reasons. They generally provide less incentive to the contractor to control costs since they generally provide at least a predetermined fee and the contractor is reimbursed for all allowable costs. This type of contract is also more time consuming and costly to place and administer. Negotiated procurement procedures are used to award these contract types, therefore, there are evaluations and negotiations of proposals that must take place. The contractor's financial or accounting system must satisfy certain requirements and must be reviewed and approved by the government prior to the placement of the contract. Furthermore, cost-reimbursement contracts require more administration and oversight activity to ensure that the contractor's operations are conducted in an efficient and effective manner and that costs are controlled. Cost-reimbursement contracts work well in situations where it is difficult to define a statement of work or prepare specifications with enough precision to use fixed-price contracts.

2.2 CONTRACTING MECHANISMS

Several types of contracting mechanisms are frequently used to allow contracts to be placed well in advance of the need for the service or product, thereby expediting the contracting process once the specific requirement is known. Frequently used contracting mechanisms are presented in Table 2.2. The indefinite delivery/indefinite quantity (IDIQ) are used when the supplies or services that will be required are known, but the schedule for and/or amount or extent of the service/product to be delivered are unknown. These are contracts that are established either on a fixed-price or cost-reimbursement basis and use delivery or task orders to obtain supplies or services once it is known when and to what extent, or amount, they will be needed. The tasks or orders are usually issued once the government and contractor have negotiated the contractor's task proposal outlining the quantities, cost estimate, and schedule for the delivery of the product/service.

Another type of contracting mechanism is often referred to as the basic or task ordering agreement (BOA/TOA). This contracting mechanism is similar to the IDIQ agreement in that orders or tasks are issued, but it is the task order that establishes the contracting method or basis (i.e., on a fixed-price or cost-reimbursement basis), to obtain the desired supplies/services. This agreement is used when there is a very general understanding of the supplies or services that will be required but which cannot be defined until the need arises. The ordering agreement contains "boilerplate" or "generic" terms and conditions (i.e., those terms and conditions that are expected to apply to all orders/tasks to be issued) that will govern the performance and delivery of the supplies/

services. Other terms and conditions are added to the task/order, depending on the contracting method/basis employed, the nature of the work to be performed, etc. Once the product or service needed and the contracting basis has been ascertained by the government, the contractor is requested to submit a proposal outlining the scope or statement of work, cost estimate, and schedule for the delivery of the service/supplies. A task order is issued once the contractor's proposal is accepted.

2.3 CONTRACTING APPROACHES

There are essentially two contracting approaches available to USAF personnel when planning cleanup of a hazardous waste site(s) at installations or bases. First, the USAF can assume the responsibility for implementing and managing the cleanup project(s) and contract directly with the commercial firms for the various remedial services needed for the project(s). This document has been developed to aid USAF personnel when taking this approach. The document contains information on the key types of contracts, approaches for determining the types of contracts to use (depending on the phase of the cleanup process the project is in), and the most common issues that arise when contracting for environmental cleanup work.

The second approach involves entering into an agreement with one of several service agencies that have been established by various government agencies specifically to conduct environmental cleanup projects for the government. The service agency assumes the responsibility for implementing and managing the cleanup and for contracting with the remedial services firms. Examples of service agencies are the AFCEE operated by the USAF out of Brooks Air Force Base (AFB); the Hazardous and Toxic Waste (HTW) Design Districts within the USACE; the Engineering Field Divisions of Naval Facilities Engineering Command (NAVFAC); CETHA operated by the Army; HAZWRAP operated by Martin Marietta Energy Systems for the U.S. Department of Energy (DOE); and EMO operated by Battelle Memorial Institute for the DOE. These agencies have substantial expertise and experience in conducting cleanup projects; each agency is described in more detail in Appendix B.

All of the service agencies are accessible to the USAF with the exception of CETHA, which is accessible only to the U.S. Army. AFCEE is the agency most accessible to USAF personnel since it is a USAF agency that has been established to serve USAF clients only. Access to the USACE and NAVFAC service agencies is provided through the same process as securing USACE and NAVFAC services for military construction projects. The DOE service agencies are accessible to the USAF under the authority provided by the Economy Act of 1932 through an Interagency Agreement (IA) or Memorandum of Understanding (MOU) entered into between the USAF and the agency.

The Economy Act of 1932 established the authority for one federal government agency to access the capabilities of another federal agency. The Act provides that federal agencies may enter into an IA or MOU and place orders for supplies and/or services, subject to their availability, with another federal agency when the head of the ordering agency determines that it is in the best interest

of the government to do so and that the ordered supplies/services cannot be provided by the commercial sector under contract as conveniently or cheaply. The Act requires that the ordering agency first evaluate and determine if it is in the best interests of the government to contract with the commercial sector for the supplies/services before considering accessing the service agency through the IA process. This also includes determining that legal authority for the acquisition exists, and states that the action will not conflict with another federal agency's authority or responsibility to provide the supplies/services (i.e., the General Services Administration [GSA]).

The federal agency, if planning to award a contract or use the services of one of its existing contractors (like the service agencies discussed earlier), is required to comply with all other legal or regulatory requirements. They are required to have the authority to contract for the services ordered by the ordering agency and to comply with federal competition requirements (i.e., that the order by the ordering agency will not place the servicing agency or its contractors in competition with the private sector).

The DOE service agencies are accessible to the USAF. However, in addition to the requirements of the Economy Act that must be satisfied, there are DOE requirements/regulations that must also be met. Under the Atomic Energy Act of 1954, as amended, the DOE is allowed to make its facilities and resources available by performing work for non-DOE entities. However, before the work for non-DOE entities can be performed, there are criteria and certifications that must be met. The most notable criteria that the work must satisfy are 1) the work must be consistent with the missions of DOE, and 2) the provision of the supplies/services by the DOE will not place DOE or its service agency contractors in direct competition with the commercial sector. Therefore, prior to establishing an IA or MOU and performing any work or project for the USAF, the service agencies operated for the DOE (HAZWRAP and EMO) must verify that the work satisfies the DOE-established criteria by preparing and submitting to DOE a Work for Others (WFO) Determination Memorandum. The memorandum documents that the work has been reviewed and determined to satisfy the criteria. In addition, the DOE requires the USAF to certify that the USAF is in compliance with the requirements of the Economy Act of 1932.

Once an IA or MOU is established, the process for initiating a project typically begins with an initial discussion between the service agency and the ordering agency (in this case the USAF), regarding the ordering agency's needs. A proposal is subsequently prepared and submitted by the service agency to the supplying agency for review/approval and forwarded to the USAF for its review and approval, once the requirements of the Economy Act and any additional requirements of the supplying agency have been satisfied. The proposal typically contains a SOW, a cost estimate, and proposed schedule. The USAF reviews and approves the proposal and issues to the supplying agency a Memorandum Purchase Order (MPO), Military Interdepartmental Purchase Request (MIPR), Air Force Project Order, or other similar document. The supplying agency then issues a document, such as a Request for Services, to

the service agency authorizing it to begin the project. Additional information pertaining to this avenue can be found in FAR, Part 17.5 entitled "Interagency Acquisitions under the Economy Act."

There are advantages and disadvantages of using a service agency. The advantages are

- Service agencies possess substantial agency and staff expertise in all aspects of the environmental cleanup process, including contracting.
- Service agencies have well established funding and contracting mechanisms.
- They are independent, unbiased, and work very closely with their clients to promote joint control of projects.
- Many provide "one-stop shopping" because they implement and manage most or all phases of the cleanup process.
- Many are able to draw on a variety of support staff from a larger organization that can provide quality assurance (QA), safety, technology assessments/deployments, etc.
- Most are established with one mission: to conduct environmental cleanup of government projects.
- They possess a variety of personnel (technical, scientific, project management, contract management) skilled in the implementation of hazardous waste cleanup projects.
- An economy of scale is realized and duplication of effort is eliminated through the centralization of services in one organization in one location.
- They are able to adjust the size and mix of their staff to implement and manage a project depending on its scope and complexity.

The disadvantages are

- There is a cost for the services provided by the service agency, depending on the agency; however, this cost may be balanced by the cost incurred, directly or indirectly, by the USAF providing the services.
- Depending on the agency, some can serve only one client.
- Direct or "hands-on" control of the project by the ordering agency is lost, because the service agency is managing the project. However, the ordering agency does exert control through funding and approval of statements of work.

- Possibly little or no input on contract award criteria; service requirements may not have the priority/urgency/dedication for accomplishment with a separate agency; incentive contracting measures may not be available.

TABLE 2.1. Most Frequently Used Types of Contracts and Mechanisms

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
FIRM FIXED PRICE (FFP)	<ul style="list-style-type: none"> • A fixed-price contract that establishes, up-front, a fixed price or a fixed unit price for the delivery of supplies or services from the contractor • The services or supplies are provided by the contractor for the established price, regardless of the actual cost; the price is not subject to adjustment • Requires the existence or establishment of fair and reasonable prices through: <ul style="list-style-type: none"> - price competition - price comparisons with similar supplies/services - other available cost information - Identification of uncertainties, if any, and establishment of reasonable prices • Suitable for standard, commercial-type supplies or services or those that can be purchased on the basis of well defined design/functional specifications or statement of work • Sealed bidding procurement procedures are typically used 	<ul style="list-style-type: none"> • For purchase of supplies/services as: <ul style="list-style-type: none"> - Supplies, materials, equipment, hardware, etc. - Paper studies - Analytical services - Testing services - Designs - Construction projects - Remedial designs - Remedial actions - Drilling 	<ul style="list-style-type: none"> • Typically the quickest, easiest, and least costly to award and administer as there are minimal contract award and administration requirements • Provides the greatest incentive to the contractor for producing the product or performing the work effectively, efficiently, and controlling cost, because the risks associated with the costs of performance are assumed by the contractor • No price increase if the actual costs to produce the product or perform the services are higher than the fixed-price amount 	<ul style="list-style-type: none"> • Potentially higher cost and/or fee due to higher risk to the contractor • No decrease in price if the actual costs are less than the fixed-price amount • Requires the preparation of very detailed specification or statement of work • No control over work performance, except through the specifications or statement of work • Generally, all funding must be available up front; use of options can provide for incremental funding • Performance uncertainties, if any, and their cost impact must be identified up front • Least flexible in handling uncertainties in the work that occur and that have not already been identified • A contingency factor may be included by the contractor to account for risk should the specifications/statement of work not be sufficiently detailed

TABLE 2.1 (cont'd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
FIRM FIXED PRICE (FFP) (continued)	<ul style="list-style-type: none"> Generally, the contractor's accounting system does not have to satisfy certain requirements to be able to accept the contract 			<ul style="list-style-type: none"> When used in situations where significant uncertainty exists about the work, may increase costs and create significant administrative burden through processing of change orders
FIXED PRICE AWARD FEE (FPAF)	<ul style="list-style-type: none"> A fixed price contract with an additional pool of money established for the contractor to earn additional fee. The award fee is dependent on the contractor's performance The contractor's performance is evaluated quarterly against established criteria and documented written reports Criteria can vary, depending on the specific situation, but should be established to improve performance in areas covered without adversely impacting performance in areas not covered by criteria. Criteria can include: effective, efficient management of work; cost control; quality; timeliness; etc. The services or supplies are provided by the contractor for the established price, regardless of the actual cost; the price is not subject to adjustment Requires the existence or establishment of fair and reasonable prices through: 	<ul style="list-style-type: none"> For purchase of supplies/services as: <ul style="list-style-type: none"> Supplies, materials, equipment, hardware, etc. Paper studies Analytical services Testing services Designs Construction projects Remedial designs Remedial actions Drilling 	<ul style="list-style-type: none"> The award fee evaluation criteria are subjective The award fee evaluation and determination is unilateral, which the contractor cannot appeal Can motivate the contractor to perform exceptionally Provides opportunity to evaluate actual performance and the conditions under which achieved Typically the quickest, easiest, and least costly to award and administer as there are minimal contract award and administration requirements Provides the greatest incentive to the contractor for producing the product or performing the work effectively, efficiently, and 	<ul style="list-style-type: none"> Requires periodic evaluations of contractor's performance Requires documentation, meetings, and administration beyond the norm Potentially higher cost and/or fee due to higher risk to the contractor No decrease in price if the actual costs are less than the fixed-price amount Requires the preparation of very detailed specification or statement of work No control over work performance, except through the specifications or statement of work Generally, all funding must be available up front; use of options can provide for incremental funding

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
FIXED PRICE AWARD FEE (FPAF) (continued)	<ul style="list-style-type: none"> - price competitor - price comparisons with similar supplies/services - other available cost information - identification of uncertainties, if any, and establishment of reasonable prices - Suitable for standard, commercial-type supplies or services or those that can be purchased on the basis of well defined design/functional specifications or statement of work - Sealed bidding procurement procedures are typically used 		<p>controlling cost, because the risks associated with the costs of performance are assumed by the contractor</p> <ul style="list-style-type: none"> • No price increase if the actual costs to produce the product or perform the services are higher than the fixed-price amount 	<ul style="list-style-type: none"> • Performance uncertainties, if any, and their cost impact must be identified up front • Least flexible in handling uncertainties in the work that occur and that have not already been identified • A contingency factor may be included by the contractor to account for risk should the specifications/statement of work not be sufficiently detailed

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
FIXED PRICE INCENTIVE (FPI)	<ul style="list-style-type: none"> • A fixed-price contract that provides an incentive (more profit) to the contractor • Incentives can be used to motivate the contractor to: <ol style="list-style-type: none"> 1) reduce costs, 2) improve product/service, or 3) reduce the delivery time, or all of the above • Establishes target costs (target cost and profit) and a profit adjustment formula • Two types of targets can be employed: "firm" or "successive." Firm targets are established once information is available. Successive or initial targets are used when firm targets cannot be established up front because of lack of information • Final costs and profit are adjusted by the formula that factors in the difference between the final costs/profit • Contract costs and performance requirements must be known 	<ul style="list-style-type: none"> • For purchase of: <ul style="list-style-type: none"> - Airplanes, ships, etc. - Weapons, weapons systems - Construction projects - Remedial designs - Remedial actions 	<ul style="list-style-type: none"> • Provides an additional incentive to the contractor to conduct operations effectively and efficiently and manage costs • Discourages contractor inefficiencies and waste • Typically the quickest, easiest, and least costly to award and administer as there are minimal contract award and administration requirements • Provides the greatest incentive to the contractor for producing the product or performing the work effectively, efficiently, and controlling cost, because the risks associated with the costs of performance are assumed by the contractor • No price increase if the actual costs to produce the product or perform the services are higher than the fixed-price amount 	<ul style="list-style-type: none"> • Requires development, negotiations, and establishment of targets up front • Requires existence of pricing information up front with which to establish targets • May require special internal reviews, approvals • Potentially higher cost and/or fee due to higher risk to the contractor • No decrease in price if the actual costs are less than the fixed-price amount • Requires the preparation of very detailed specification or statement of work • No control over work performance, except through the specifications or statement of work • Generally, all funding must be available up front; use of options can provide for incremental funding • Performance uncertainties, if any, and their cost impact must be identified up front

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
FIXED PRICE INCENTIVE (FPI) (continued)	<ul style="list-style-type: none"> Reasonable and realistic (attainable) targets are required so as to have a meaningful impact on the contractor's performance The contractor's accounting system must be sufficient to provide data to support negotiation/establishment of targets and final costs/profit Suitable for commercial-type supplies/services that can be well defined and that are high cost and/or have long production time requirements Negotiated procurement procedures are used 		<ul style="list-style-type: none"> costs of performance are assumed by the contractor No price increase if the actual costs to produce the product or perform the services are higher than the fixed-price amount 	<ul style="list-style-type: none"> Least flexible in handling uncertainties in the work that occur and that have not already been identified A contingency factor may be included by the contractor to account for risk should the specifications/statement of work not be sufficiently detailed

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
FIRM FIXED PRICE LEVEL OF EFFORT (FFP, LOE)	<ul style="list-style-type: none"> A fixed-price contract that specifies a level of effort to be provided by the contractor, usually hours, over a certain period of time for a fixed price or amount Useful when the work cannot be clearly defined and for investigations or studies into a specific area Requires reasonable assurance that the result desired cannot be achieved for less than the specified level of effort Deliverable is typically a report revealing the results achieved for the required level of effort Negotiated procurement procedures are used Usually, the contractor's accounting system does not have to satisfy certain requirements to be able to accept the contract 	<ul style="list-style-type: none"> Suitable for: <ul style="list-style-type: none"> Paper studies, surveys Literature searches Preliminary assessments Site investigations Feasibility studies Product/prototype development 	<ul style="list-style-type: none"> Useful when work cannot be clearly defined Provides flexibility to handle changes to work with ease Provides opportunity to exert control over direction of work Quicker, easier, and less costly to award and administer 	<ul style="list-style-type: none"> Payment is based on effort expended rather than results achieved No incentive to the contractor to achieve the desired result, operate efficiently and effectively, and/or control costs May require special internal reviews/approvals Total funding must be available up front

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
COST PLUS AWARD FEE (CPAF)	<ul style="list-style-type: none"> A cost-reimbursement contract that provides a ceiling price based on the estimate to perform the work and a base or minimum fee and a reward or award fee The award fee is dependent on the contractor's performance The contractor's performance is evaluated quarterly against established criteria and documents in written reports Criteria can vary, depending on the specific situation, but should be established to improve performance in areas covered without adversely impacting performance in areas not covered by criteria. Criteria can include: effective, efficient management of work; cost control; quality; timeliness; etc. Conducive to projects where the nature of the work to be performed is such that information/data needed to prepare detailed statement of work/ specifications is not available or uncertainties exist 	<ul style="list-style-type: none"> Appropriate for: <ul style="list-style-type: none"> Management of facilities Gathering/analyzing statistics Engineering services Computer services Site investigations Remedial investigations Management of site cleanup operations Nonprofit educational institutions 	<ul style="list-style-type: none"> The evaluation criteria are subjective The fee evaluation and determination is unilateral, which the contractor cannot appeal Motivates the contractor to perform exceptionally Provides opportunity to evaluate actual performance and the conditions under which achieved No requirement that all funding be available up front because it can be incrementally funded Provides flexibility to handle changes/uncertainties in work Provides opportunity to control work direction Statutory limits exist on the amount of the fees that can be established 	<ul style="list-style-type: none"> Requirement that the contractor's performance be closely monitored to ensure that operations are being conducted efficiently and effectively and costs are being controlled Requirement that written evaluations of contractor's performance be conducted quarterly Sizeable contract award and administration effort because of contract award and contractor performance monitoring and evaluation requirements Risks associated with the costs of performance are not assumed by the contractor May require special internal reviews/approvals

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
COST PLUS AWARD FEE (CPAF) (continued)	<ul style="list-style-type: none"> Contractor must have an approved accounting system Negotiated procurement procedures are used 			

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
COST PLUS INCENTIVE FEE (CPIF)	<ul style="list-style-type: none"> A cost-reimbursement contract that provides for a negotiated target cost, target fee, and minimum and maximum fees The fee is adjusted by a formula that provides for: 1) an increase in the fee when the final costs are below the target, and 2) a reduced fee under the opposite conditions Incentive applied to cost, performance, and/or delivery Provides incentive to motivate the contractor to manage the project effectively, efficiently, and to control costs Technical and cost uncertainties exist but the desired performance objectives are identifiable and confidence is reasonably good that they are achievable Suited for major development and test programs/ systems when desired performance objectives are known and prototype testing and evaluation will occur 	<ul style="list-style-type: none"> For acquisition of: <ul style="list-style-type: none"> Initial product development where performance objectives are known Production runs where improved performance is desired New/innovative technology assessments and deployments Conduct of a number of preliminary assessments/site investigations and/or remedial investigations/feasibility studies 	<ul style="list-style-type: none"> The contractor is encouraged to perform the work economically and efficiently and control costs Total funding up front not required because of incremental funding option Provides flexibility to handle changes/uncertainties in work Provides opportunity to exert control over work direction Minimal fee evaluation/negotiation Statutory limits exist on the amount of fee that can be established 	<ul style="list-style-type: none"> Requirement that the contractor's performance be closely monitored to ensure that efficient methods and effective cost controls are being employed Contract award and administration effort and costs are high because of contract award and administration requirements Risks associated with the costs of performance are not assumed by the contractor May require special internal reviews/approvals

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
COST PLUS INCENTIVE FEE (CPIF) (continued)	<ul style="list-style-type: none"> The contractor must have an accounting system that is capable of determining the costs applicable to the contract Negotiated procurement procedures are used 			

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
COST PLUS FIXED FEE (CPFF)	<ul style="list-style-type: none"> A cost-reimbursement contract that consists of an estimated cost and a "fixed" dollar amount for the fee that does not vary with the actual costs Establishes a ceiling amount or price which may not be exceeded except at the risk of the contractor There are two forms: 1) a completion form that involves a definite goal or end product to be delivered at the completion and 2) a term form that obligates the contractor to a level of effort for a stated period of time Suitable for use when uncertainties about the work to be performed exist so that the work cannot be sufficiently defined and costs accurately estimated The contractor's accounting system must be capable of determining the costs associated with the contract Negotiated procurement procedures are used 	<ul style="list-style-type: none"> For acquisition of: <ul style="list-style-type: none"> R&D work Preliminary assessments/site investigations Records of decision Remedial investigations Feasibility studies Remedial designs 	<ul style="list-style-type: none"> Provides flexibility for handling changes/uncertainties in work Provides control over work direction No requirement that all funding be available up front because it can be incrementally funded Statutory limits exist on the amount of fee that can be established 	<ul style="list-style-type: none"> Requirement that the contractor's performance be closely monitored to ensure that efficient methods and effective cost controls are employed Contractor has no incentive to effectively and efficiently conduct the work and control costs Risks associated with the cost of performance are not assumed by the contractor May require special internal reviews/approvals Significant contract award and administration effort and costs because of procurement procedures and performance monitoring requirements

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
LABOR HOUR (LH)	<ul style="list-style-type: none"> • A cost-reimbursement contract that provides for the reimbursement of all labor expended • Establishes, up front, fixed hourly rates for labor that includes factors for overhead, profit, etc., (i.e., "fully burdened") • A ceiling price/total funding amount is typically established which the contractor cannot exceed, except at own risk • For situations where the nature of the work is known but it is impossible to estimate in advance the extent or duration of work to be performed or costs cannot be estimated with sufficient accuracy • Negotiated procurement procedures typically used • Generally, the contractor's accounting system does not have to satisfy certain requirements to be able to accept the contract 	<ul style="list-style-type: none"> • Appropriate for buying: <ul style="list-style-type: none"> - Engineering/design services, consulting services - Emergency situations (hazardous materials spills, waste leaks, etc.) - Monitoring work - Repair, maintenance, overhaul work 	<ul style="list-style-type: none"> • Provides opportunity to exert control over direction of work • Provides flexibility to handle changes/uncertainties in work with ease • Provides for incremental funding; total funding not required up front • Statutory limits exist on the amount of fee that can be provided 	<ul style="list-style-type: none"> • Provides no incentive for the contractor to operate effectively and efficiently and control costs • Risks associated with the costs of performance are not assumed by the contractor • Requires that the contractor's performance be closely monitored to ensure efficient methods and effective cost-control measures are employed • Significant contract award and administration effort and costs involved because of contract award procedures and requirements to monitor the contractor's performance • May require special internal reviews/approvals

TABLE 2.1 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
TIME AND MATERIALS (T&M) (same as LH contract but includes materials when materials are required)	<ul style="list-style-type: none"> • A cost-reimbursement contract that provides the reimbursement of all labor and material costs • Labor is reimbursed using fixed hourly rates (see LH contract, above) and any materials, including handling charges, are reimbursed at cost • A ceiling price/total funding amount is typically established which the contractor cannot exceed, except at own risk • For situations where the nature of the work is known but it is impossible to estimate in advance the extent or duration of work to be performed or costs cannot be estimated with sufficient accuracy • Negotiated procurement procedures typically used • Generally, the contractor's accounting system does not have to satisfy certain requirements to be able to accept the contract 	<ul style="list-style-type: none"> • Appropriate for buying: <ul style="list-style-type: none"> - Engineering/design services, consulting services - Emergency situations (hazardous materials spills, waste leaks, etc.) - Monitoring work - Repair, maintenance, overhaul work 	<ul style="list-style-type: none"> • Provides opportunity to exert control over direction of work • Provides flexibility to handle changes/uncertainties in work with ease • Provides for incremental funding; total funding not required up front • Statutory limits exist on the amount of fee that can be provided 	<ul style="list-style-type: none"> • Provides no incentive for the contractor to operate effectively and efficiently and control costs • Risks associated with the costs of performance are not assumed by the contractor • Requires that the contractor's performance be closely monitored to ensure efficient methods and effective cost-control measures are employed • Significant contract award and administration effort and costs involved because of contract award procedures and requirements to monitor the contractor's performance • May require special internal reviews/approvals

TABLE 2.2. Most Frequently Used Contracting Mechanisms

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
INDEFINITE DELIVERY/INDEFINITE QUANTITY (IDIQ)	<ul style="list-style-type: none"> • A contracting mechanism allowing for indefinite deliveries and/or quantities of specific services/supplies where it is impossible to determine in advance the quantities needed or the time frame required • A fixed-price or cost-reimbursement type of contract is established which outlines the terms and conditions that will govern the orders • Supplies/services are delivered through placement of orders that define the quantities, estimated cost, and schedule/delivery are issued • Establishes minimum and maximum amounts to be ordered • Funds are authorized with each order • For defined supplies/services where a significant amount and a recurring need is anticipated 	<ul style="list-style-type: none"> • For purchase of: <ul style="list-style-type: none"> - Analytical services - Environmental assessments - Preliminary assessments/site investigations - Remedial investigations/feasibility studies - Remedial designs/remedial actions - Drilling services - Testing services 	<ul style="list-style-type: none"> • Limited commitment/obligation • Limited inventories required • Services/supplies can be provided directly to user • Flexibility in ordering quantities/time of delivery and contracting basis employed (fixed-price/cost-reimbursement) • Order after needs determined • Expedite contracting process/ placement of orders by satisfying competitive procurement requirements and establishing agreement up front before need arises 	<ul style="list-style-type: none"> • Obligated to a minimum quantity • Some award and administration burden associated with establishing agreement and issuing orders • Additional administrative effort and cost may be experienced depending on contracting basis used (fixed-price, cost-reimbursement)

TABLE 2.2 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
INDEFINITE DELIVERY/ DEFINITE QUANTITY (IDDQ)	<ul style="list-style-type: none"> • A contracting mechanism providing for delivery of a definite quantity of specific supplies/services, with deliveries to be scheduled at designated locations and times upon order • Use when it can be determined in advance that 1) a definite quantity of supplies/services will be required during the contract period, and 2) the supplies/services are regularly available or will be available after a short lead time • A fixed-price or cost-reimbursement type of contract is established which outlines the terms and conditions that will govern the orders • Supplies/services are delivered through placement of orders that define the quantities, estimated cost, and schedule/delivery are issued • Establishes minimum and maximum amounts to be ordered • Funds are authorized with each order • For defined supplies/services where a significant amount and a recurring need is anticipated 	<ul style="list-style-type: none"> • For purchase of: <ul style="list-style-type: none"> - Analytical services - Environmental assessments - Preliminary assessments/site investigations - Remedial investigations/feasibility studies - Remedial designs/remedial actions - Drilling services - Testing services 	<ul style="list-style-type: none"> • Limited commitment/obligation • Limited inventories required • Services/supplies can be provided directly to user • Flexibility in ordering quantities/time of delivery and contracting basis employed (fixed-price/cost-reimbursement) • Order after needs determined • Expedite contracting process/ placement of orders by satisfying competitive procurement requirements and establishing agreement up front before need arises 	<ul style="list-style-type: none"> • Commitment to purchase a specific quantity of supplies/services • No flexibility in quantities ordered • Advance identification and quantification of specific services/supplies to be needed • Some award and administration burden associated with establishing agreement and issuing orders • Additional administrative effort and cost may be experienced depending on contracting basis used (fixed-price, cost-reimbursement)

TABLE 2.2 (contd)

TYPE	DESCRIPTION/KEY FEATURES	USE	ADVANTAGES TO GOVERNMENT	DISADVANTAGES
BASIC ORDERING AGREEMENT/ TASK ORDERING AGREEMENT (BOA/TOA)	<ul style="list-style-type: none"> A contracting mechanism allowing for the identification and delivery of supplies/services once they have been determined. Contains the general "generic/bollerplate" terms and conditions applying to future contracts or orders, and a general description or understanding of the services/items anticipated to be needed. The contracting method (i.e., fixed-price, cost-reimbursement) is outlined in each order Additional terms and conditions are included in the tasks or order depending on the contracting basis (fixed-price or cost-reimbursement), nature of the supplies/ services to be provided The supplies/services and their quantities and/or delivery are not known Often specifies a dollar amount and ordering period beyond which contracts/orders cannot be issued Once need identified, contractor submits proposal outline scope, schedule, estimated cost/fixed-price so contract/order can be issued 	<ul style="list-style-type: none"> Suitable for use when it is anticipated there will be substantial number of supplies/ amount of services and recurring need 	<ul style="list-style-type: none"> Expedites the contracting process by pre-negotiating the general terms and conditions TOA's can expedite the contracting process by satisfying the competition requirements up-front if the source evaluation and selection process are structured properly Flexibility to determine, at the time of need, the services/supplies needed, and the appropriate contract type See above for advantages associated with the various contract types Establishes long-term relationships that promote stability in programs, contractor personnel, and consistency of products and services Provides opportunities for continuous improvement Promotes cost advantages through economies of scale and lower costs because of volumes of products/ services to be ordered 	<ul style="list-style-type: none"> Some award and administrative effort and cost associated with placing contract/orders May incur additional administrative effort and cost depending on contract basis employed (i.e., fixed-price, cost-reimbursement)

3.0 DECISION ANALYSIS

The purpose of the decision analysis section of the document is to provide the reader with a framework for establishing a set of viable contract alternatives for a particular phase of an environmental restoration project. This decision analysis section addresses issues from the government's point of view, which is to distribute overall risks in a manner acceptable to all parties involved in the contract. The primary audience of this section is technical staff working with contracting officers to select a contract for work to be performed in an environmental restoration phase. These people are typically very familiar with the work required in a phase or on a project, but they may be unfamiliar with the types of contracts available to help them achieve their objectives. The technical staff may also be unaware of the potential effects or limitations of certain contracts on their work.

It is important to remember that the intent of this section is not to replace the expertise and judgment of the users. Variations between projects with such things as site-specific issues, complexity, and duration prohibit the development of a guide to answer specific questions about specific situations. The intent, rather, is to suggest to the user which type of contract might be appropriate for a particular stage (e.g., RI/FS) or phase (e.g., an initial investigation for an RI/FS). After the potential contract types have been identified, the user should turn to the contract types section of the document for an in-depth explanation regarding each, and discuss with their designated contracts representative any specific questions they might have. This section also addresses those factors contributing to uncertainty in a particular stage.

3.1 DRIVERS FOR CONTRACT SELECTION

The selection of a contract type for work to be done in an environmental restoration phase or stage (i.e., PA/SI, RI/FS, RD or RA) is typically the result of an integrated effort between two groups of people: those having technical expertise regarding the work that needs to be done, and those familiar with the various type of contracts that are available to do the work. Expertise and knowledge from both these areas is essential in order to successfully address the major drivers of contract selection: uncertainty and risk. Issues pertaining to uncertainty are addressed primarily by technical people who have the knowledge needed to address site-specific questions. Risk issues deal with controlling the costs associated with work to be done in a phase or stage and are addressed by contracts people who have expertise in selecting contracts based on uncertainty.

Uncertainty is the primary driver in contract selection (Figure 3.1). Earlier phases within each stage in the environmental restoration process deal more with information specific to a site. Therefore, because project work phases are information dependent, more uncertainty is associated with them. For example, the early part of an RI has great uncertainty because little is known about the hazards that exist or that might be encountered or created during intrusive activities at the site (e.g., soil boring, sampling, excavation, drilling monitoring wells). It should be noted that the greatest uncertainty, which

High
Uncertainty

Low
Uncertainty

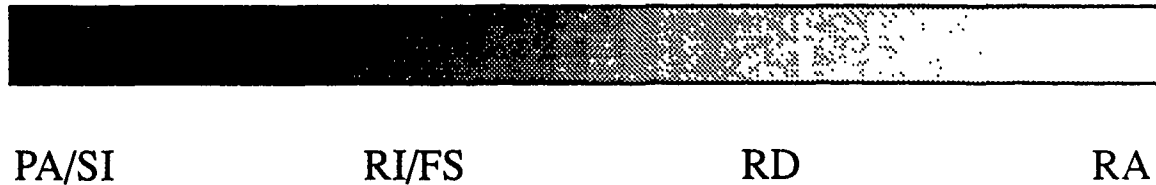


FIGURE 3.1. Relationship of Uncertainty to Stage of Environmental Restoration

implies high risk to the contractor, occurs during the PA/SI. In the PA/SI stage, very little is known about the site; however, the primary items of work that need to be done are not difficult to quantify (e.g., record search, site visit, surface samples). If the SI portion requires intrusive work to develop an effective RI work plan, then the risk of the work is potentially very high.

During contract selection, information is being gathered, sites are being characterized, and initial assessments are being developed. As later phases or stages are started, more and more information becomes available, and the uncertainty associated with a site decreases. To a much lesser degree, uncertainty still exists, but focuses more on external issues than on site-specific knowledge. (These external issues include such things as successful completion of earlier phases or stages, continuity of effort by a single contractor, etc.)

Risk is the second major driver in contract selection and is itself driven largely by uncertainty. Risk can be associated with many different aspects of a project, such as time, health, or materials, and deals primarily with the exposure of the government (or contractor) to financial loss or damage. Figure 3.2 shows the relative overall risk that the government incurs when dealing with various types of contracts. Notice that, as a rule, fixed-price type contracts incur the least financial risk to the government; while cost-reimbursement type contracts incur the most. This is because in a fixed-price type contract setting, although knowledge of the site may or may not be known, financial risks with respect to the cost of the work are precisely defined. In a cost-reimbursement type contract, this precise defining of the costs does not occur.

3.2 HOW TO USE THE DECISION ANALYSIS SECTION

This section on decision analysis has been written with a number of assumptions in mind. First, it is assumed that a contract will be associated with the various phases or stages in the life cycle of an environmental restoration project (i.e., PA/SI, RI/FS, RD, or RA). Second, it is assumed that the person using this section wants to select a contract type to minimize the uncertainty

High overall risk
to government

Time & Materials/Labor Hours

Cost Plus Fixed Fee

Cost Plus Incentive Fee

Cost Plus Award Fee

Fixed-Price Level of Effort

Fixed-Price Incentive

Firm-Fixed Price

Cost Reimbursement
Contracts

Fixed Price
Contracts

Low overall risk
to government

FIGURE 3.2. Relationship of Overall Risk to Contract Type

and risk to the government, yet distribute both in a manner acceptable to all parties in the contract. Next, it is assumed the technical person using the section is familiar with the work required, and with the phase or stage in which it will be performed, but not necessarily with the types of contracts that might be used. Finally, it is assumed that the eventual selection of a contract type for work in an environmental stage is the result of a joint effort between contracts and technical people. Technical people supply information addressing uncertainty issues in an environmental restoration stage, while contracts people supply the expertise in assessing the risk associated with a contract, given the technical information.

Figure 3.3 lists the contracts that are potentially applicable to a particular environmental restoration stage. The horizontal axis illustrates the various stages of the environmental restoration process in order of decreasing uncertainty. The left most stage (PA/SI) has the most technical uncertainty associated with it, while the right most stage (RA) has the least. At the end (right side) of each horizontal bar is a contract type. This list of the most commonly used contract types is ordered from most financial risk to the government (top) to the least financial risk (bottom).

The horizontal bars in Figure 3.3 represent areas where each type of contract is potentially applicable. Notice the bars are gradient shaded. This shading illustrates and reinforces the fact that there is really no distinct definition of when a particular contract would be best applied to a stage or phase of work. Light shading indicates that the contract is more preferable for a given phase, and dark shading indicates that a contract is less preferable. Notice some of the bars under a stage are black. These contracts have been identified (through analysis of FAR sections and interviews) as inappropriate for normal use under the phase in question. Unless your situation is very unique, more than likely these contracts would not address your problem as well as would some of the lighter shaded contracts. Notice also that multiple bars appear under a stage. This indicates that more than one kind of contract can be applied to that particular phase or stage. Which of these contracts appearing under a phase or stage is the best choice depends on your unique situation and can usually be determined after reading the appropriate material in the contracts section and discussing the results with a contracting officer.

The distinction between contract types is self-evident from the diagram, however, the region over which a particular stage is applicable is not. The traditional start of work in a stage occurs under its corresponding heading in the diagram. This assumes that all of the work in the previous phases has been satisfactorily performed and completed. Many situations, however, do not meet these criteria. Information is still coming in from previous work, or later work in a stage cannot be started until earlier work is completed. In these situations the starting and ending points of a given stage on the diagram extend to include the uncertainty associated with these issues. The extent of these ranges depends on your unique situation. For example, if the work is in one of the last phases of the RI/FS stage, you would probably

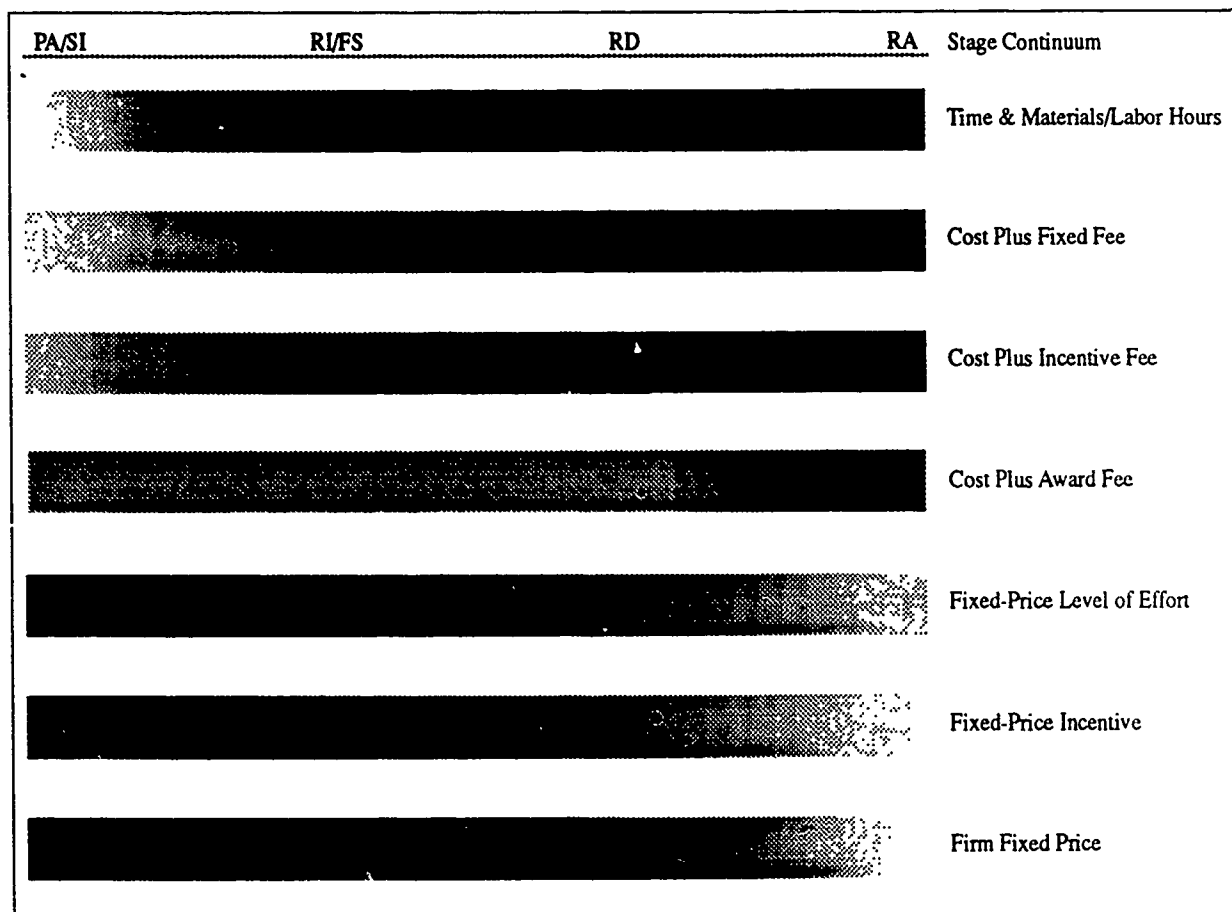
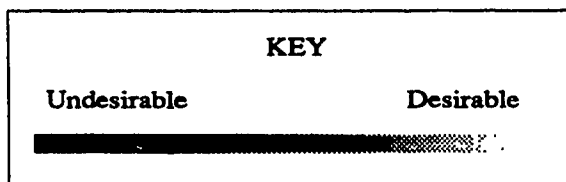


FIGURE 3.3. Decision Chart Template for Determining Contract Type Applicability to Various Stages in Environmental Restoration

examine the contract bars close to the RD stage. Similarly, if you were in the PA/SI stage but wanted a contract for doing preliminary RI/FS work, you would examine the contract bars closer to the PA/SI stage. In fact, work to be done for an environmental restoration stage can be thought of as occurring on a continuum, with the placement of the work on the continuum determined by the situation driving it.

To use the decision analysis chart (Figure 3.3), first determine what type of work is required (e.g., a paper study, a well drilled, all activities associated with a remedial assessment, etc.) and the stage in which the work will be performed. Next, decide where on the stage continuum your work can be most appropriately located (i.e., is it FS work to be done late in the RI/FS stage or RA work that needs to be done midway through RD?). From this location, draw an imaginary vertical line down through all of the contract bars. The lighter the shading in the bars under your selected location, the more appropriate the contract. Select the two or three lightest-shaded contracts, then look in the contracts section of the document for a listing of their description, key features, use, advantages, and disadvantages. Next, look in Section 3.3 for the uncertainty issues corresponding to the environmental restoration stage you selected. These issues represent contributors to the uncertainty in a given stage and should be used by both the technical and contracts staff to assess risk associated with each contract type and to choose the most appropriate contract. Use the contracts you have chosen, the pertinent information in the contracts section, and the associated uncertainty issues as a starting point from which to discuss suggested contract types with contracts staff.

Example A in Figure 3.4 represents a scenario where work will begin with the first phase of an RI/FS. In this early phase of the RI stage, relatively little is known about such factors as the ground-water flow, rate, and direction; the types and horizontal extent of the contamination; vertical extent of the contaminants in the vadose zone and ground water; or variation and influence of the geologic media. From both the government's and contractor's perspectives (i.e., assuming a balanced view or "win-win" approach), four contract types best deal with this high uncertainty: time and materials/labor hours, cost plus fixed fee, cost plus incentive fee, and cost plus award fee. Example B presents a situation of work beginning in a later phase of an RI/FS. In this later phase, the rate and extent of contamination and hydrology are relatively well known. Much of these data are confirmatory or additional data that will be needed for the FS or RD. Example B, which is lower in uncertainty than Example A, indicates that the preferred contract types are cost plus fixed fee, cost plus incentive fee, cost plus award fee, fixed-price level of effort or fixed-price incentive. If RI data were being collected exclusively for the RD, then example C would apply and the list of potential contracts would include cost plus award fee, fixed-price level of effort, fixed price incentive, and possibly firm fixed price. In each of these examples, after selecting the appropriate set of contracts, the next step would be to read the pertinent information in the contracts section and examine the appropriate uncertainty issues in Section 3.3. Keep in mind that final determination of a suitable contract would be the result of a joint effort between technical and contracts personnel.

The principles of contract selection that were applied in a broad sense in the preceding examples can also be used to generate a list of contracts that might apply to a particular phase within a stage. Figure 3.5 is a template that can be used to generate a picture of time ordered phases within a stage. By

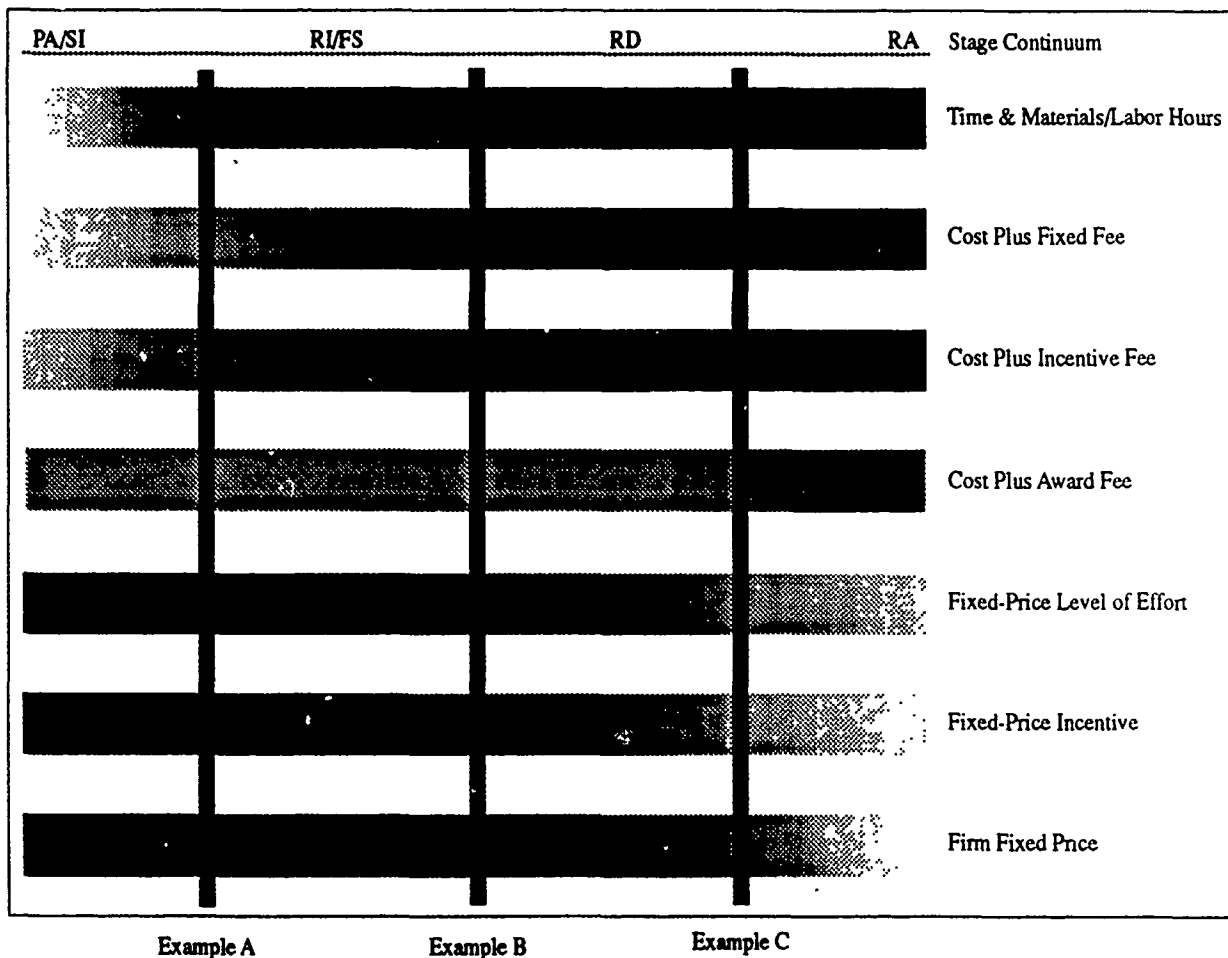
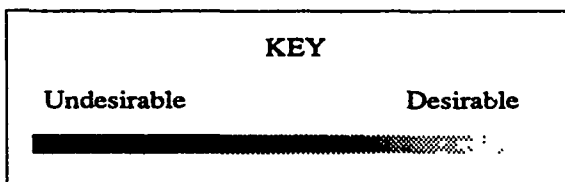
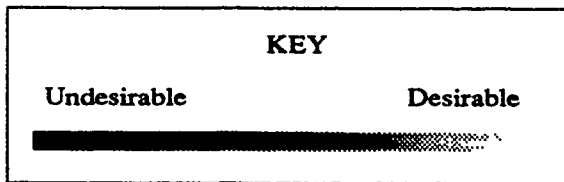


FIGURE 3.4. Example of Decision Chart Used for Stages of the CERCLA Process

determining the number of phases that are appropriate for a particular situation and stage, and placing them in the appropriate positions on the template, suggestions as to which contracts may be appropriate to a phase are generated.

Consider, for example, Figure 3.6, which shows a hypothetical configuration of phases within the RI/FS stage. In this particular example, it has been determined that there are four phases within the RI/FS stage (In real life situations



Phases:

Stage: _____

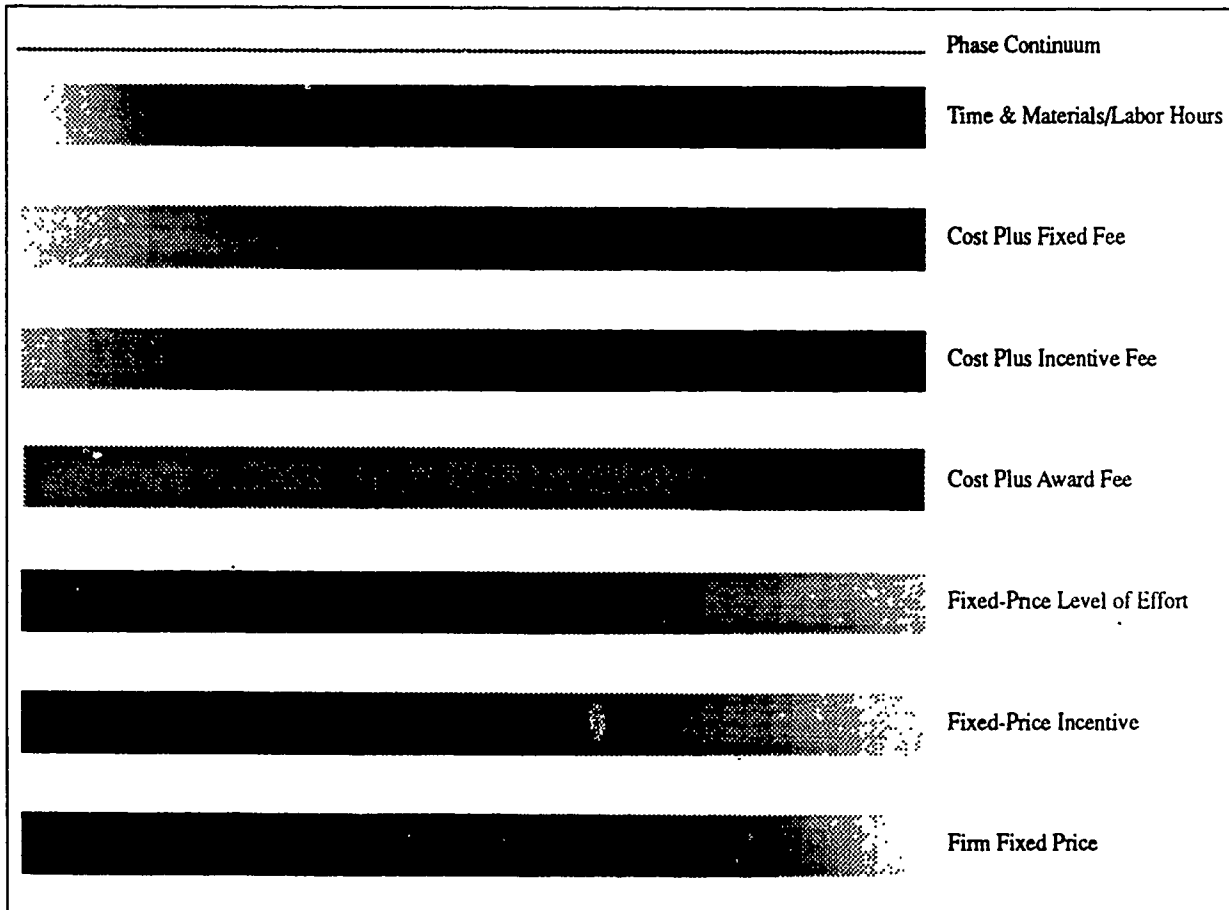
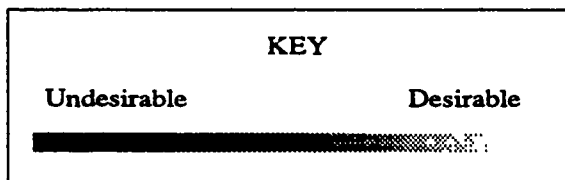


FIGURE 3.5. Decision Chart Template for Determining Contract Type Applicability to Various Phases Within an Environmental Restoration Stage

there may be more or less, depending on the circumstances and complexity of the situation). They are in time dependant order, and have been placed according to the relative gains in knowledge that occur in each phase. In this example, the exploratory phase has been placed to indicate that there is much accurate and valuable knowledge that is already known about the site. This means very little knowledge will be added by the confirmatory phase, and is reflected by a small space between the exploratory and confirmatory phases.



Phases:

Stage: RI/FS

1. Exploratory
2. Confirmatory
3. Design Selection
4. Pre Design

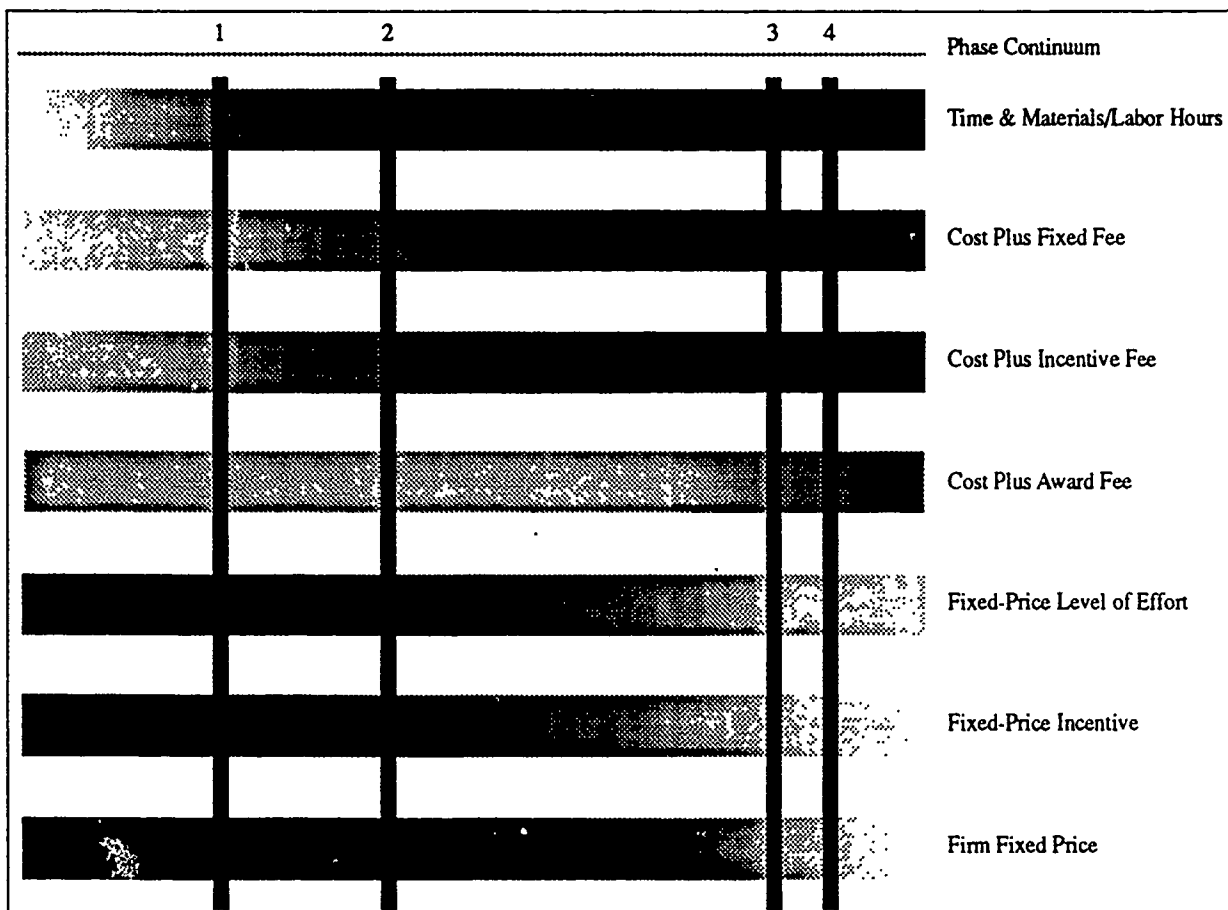


FIGURE 3.6. Example of Decision Chart Used for Phases within the Remedial Investigation/Feasibility Study Stage

Many new alternatives exist for the design selection and subsequent study to select the best of these will add greatly to the overall knowledge of the site. To show this, a larger space has been placed between the confirmatory and design phases. Pre-Design is the final phase in this example and is assumed to be an effort to obtain information to fine tune the design of the alternative selected in the previous phase. Little additional knowledge will be gained in this phase, so it is placed close to the design selection phase.

There are three key issues to realize when using the template in Figure 3.5 for contract selection. First, the template can be used for any of the stages in the environmental restoration process. Every stage starts out with less knowledge than it ends with, so the overall principles of the chart hold true. Second, the number of phases that exist within a stage can vary depending the situation of the user and the stage being considered. The example listed four sample phases for illustration purposes only. Finally, the phases should be placed on the chart in positions that reflect the amount of knowledge that is expected to be gained during that phase. The exception to this is the placement of the first phase, which needs to be placed in such a manner as to reflect the amount of knowledge that is currently available about the situation.

3.3 UNCERTAINTY ISSUES

This subsection defines uncertainty issues that should be considered when evaluating the type of contract to be used for a specific project.

Preliminary Assessment/Site Investigation

Goal: To confirm the presence of contaminants at a site.

The uncertainty issues are

1. Geologic media must be characterized (morphology) with respect to specific contaminant pathways. Determine the following:
 - thickness of media
 - type of media
 - extent of media
 - sequence of various media.
2. Hydrology must be characterized. Determine the ability of geologic media to:
 - transmit contaminants
 - store contaminants
 - direct flow of contaminants.
3. Contaminants must be characterized. Determine the following:
 - types
 - interactions
 - concentrations
 - mobility
 - toxicity.

4. Determine extent of previous documentation of site. Consider the following:
 - location of spills
 - availability of records
 - existence of records
 - people with knowledge of site.
5. Determine the magnitude of operations/contaminants. Consider the following:
 - multiple sites
 - multiple sources
 - size of contamination.

Remedial Investigation/Feasibility Study

Goal: To 1) determine the types of contaminants and their gross extent and concentration, 2) predict the future extent of these contaminants at the site(s), and 3) select a remediation technology based on the RI results.

The uncertainty issues are all those listed for PA/SI plus the following:

1. adequate definition during the RI
2. continuity of contractor work
3. lack of technology to support conclusions from RI.

Remedial Design

Goal: The design of the remedial action alternative selected in the RI/FS stage and documented in the DD/ROD is completed.

The uncertainty issues are

1. proper completion of previous phases
2. minimal design of the alternative (underdesigned)
3. flexibility of design to accommodate changes in the RA
4. sufficiently detailed enough performance specifications at the completion of RI/FS to permit proper design of the RD alternative
5. Brooks Act ramifications can cause complications.

Remedial Action

Goal: Implementation of the RA alternative designed in the RD stage.
Includes operation of technology and any post-project activities for verification of cleanup.

The uncertainty issues are

1. quality of the RI/FS and RD with respect to real world conditions
2. actual quantification of contaminants as opposed to the estimates from the RI/FS
3. failure of cleanup technology to perform as expected
4. limited firms for implementation
5. current workload of available firms
6. confidence of contractor in previous work.

4.0 CONTRACTING ALTERNATIVES

The **Environmental Restoration Contracting Strategies Analysis** is not a "quick-fix" for problems related to environmental contracts. In dealing with such contracts, considerations must include more than deciding which type of contract or mechanism is necessary relative to a specific stage or phase of IRP work. Typically, there is greater uncertainty in environmental work than in standard investigative, design, and construction work. In addition, the level of uncertainty varies with the stages and phases of the work. Therefore, the selection and implementation of the most suitable type of contract must allow for variation in contracting CERCLA work. The appropriate use of contract types, contract mechanisms and contractors for various stages of IRP work requires making choices for which there will be advantages and disadvantages.

This section of the document discusses the choices and concerns regarding contracting alternatives. The discussion includes the remedial action (IRP) process; alternative approaches to contract work for stages of the IRP process including important considerations, merits, and potential pitfalls of each approach; contracting considerations that relate to the contracting mechanism, budget, schedule, and risk to client and contractor; and a summary of experiences of service and federal agencies who contract for environmental work.

4.1 THE REMEDIAL ACTION PROCESS

The remedial action process consists of PA/SI, RI/FS, RD, RA, and SC stages. Other aspects of environmental restoration include emergency removal actions, long-term monitoring, and oversight. Because there is typically great uncertainty in the early phases of the remedial action process, contract approaches differ from later stages, or they may differ within a stage such as the RI, as noted in Section 3. Even the remedial design is often quantitatively uncertain because it is based on the findings of the RI/FS. The actual extent and cleanup effort of the RA are usually not entirely known until the cleanup has been at least partially completed. Also, the effectiveness of the cleanup is usually not known for certain until extensive interim and sometimes long-term monitoring have been completed. Remedial action projects are often viewed in context of a more traditional construction project in which the technology is known, all aspects fully studied, and work is executed with proven designs under controlled or known conditions. However, remedial actions typically deal with unknowns, studies supporting the remedial design are almost always incomplete, and numerous changes often are made during the stages of the CERCLA work because there are so many unknowns. With all of these uncertainties in mind, various alternative approaches to environmental contracting can be discussed.

4.2 ALTERNATIVE APPROACHES

Many alternative approaches to contract work exist for stages and phases of the IRP process. These approaches can be grouped into the following four major approaches (Figure 4.1):

- Approach 1--different contractors for each stage or phase
- Approach 2--RI/FS/RD work awarded to one contractor, RA work awarded to a second contractor
- Approach 3--RI/FS work awarded to one contractor, RD/RA work awarded to a second contractor
- Approach 4--All work is awarded to one service agency or contractor, who then subcontracts the work to other contractors.

Approach 1

The first approach has been the accepted approach for contracting work and, to a limited extent, is still in use. Each stage and often each phase within a stage of the IRP process is performed by different contractors under different

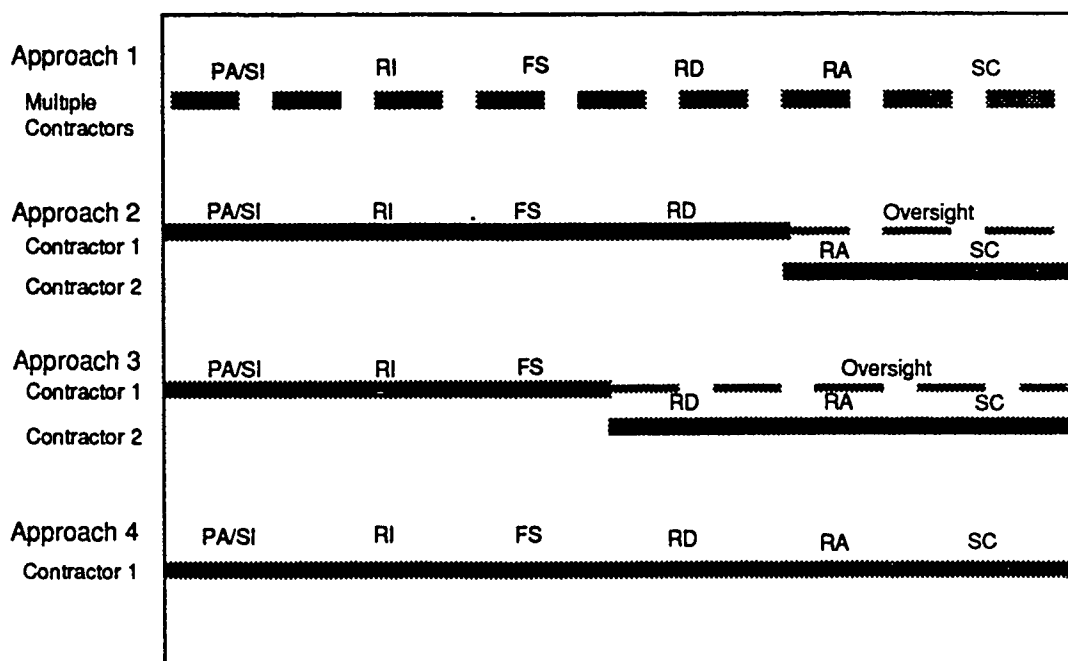


FIGURE 4.1. Four Alternative Approaches to Environmental Contracting

IDIQ or limited contract arrangements. The length of contract is typically 2 to 3 years. In the first approach, interim monitoring and long-term monitoring are performed by various contractors.

In terms of advantages, the first approach has few to offer the client or the contractor. The primary advantage goes to the client. In the case of poor performance by the contractor, the contractor will not be awarded additional task orders, and the contract will terminate in a short period of time. Also, there is virtually no potential for conflict of interest or vested interest in a project or project site because contractors have no way of knowing if they will obtain additional site-related work.

Perhaps the most obvious and well known disadvantage of the first approach is the lack of continuity of work. For example, many RI tasks are repeated because records of the previous investigators are lost, or successive contractors mistrust the work of previous contractors. Therefore, much of the work conducted during the RI/FS is redundant. In other cases, as the FS is completed and remedial design is initiated, the contractors used during the RI/FS are often no longer under contract, and hence, are unavailable to answer questions from the RD contractor. This lack of communication results in material poorly used and materials and equipment surpluses lost. The lack of continuity, redundancy of effort, and the high cost of projects are due to the short lengths (two and three years) of the contracts. Competitive bidding of contracts every two or three years is expensive and time-consuming for both the contractor and the client. Also, the contractor has little incentive to do long-range planning, which could minimize costs by standardizing approaches, materials, and equipment purchases. The contractor also lacks incentive to perform high quality work for government agencies, because agencies often do not track past performance.

Approach 2

The second approach, which gives the RI/FS/RD work to one contractor and the RA work to a second contractor, is becoming more common than the first approach. Typically, these contracts last 5 or 10 years maximum, and interim and long-term monitoring are awarded to the first contractor or a third party consultant.

If the RI/FS contractor has an option for design in his contract, the government can choose to allow him to do the design, if the work has been satisfactory. The RI/FS contractor is likely to have a better knowledge of the site specifics and the base operations than a new contractor. Therefore, the RI/FS contractor is likely to be the best qualified to conduct the RD. This approach reduces the risk of a designer recommending a design that maximizes the RA contractor's profit. The contractor, who did the RI/FS may try to overdesign during the RD; however, the service center or agency staff managing the project can usually determine if the project is overdesigned.

Performance of the RA oversight and quality assurance by the RI/FS contractor results in an additional project cost. If the government agency uses a

service center to manage the project, quality assurance will be performed. If a government agency provides the oversight, there is no profit involved, but if the agency contracts to use the RI/FS contractor, the contractor will charge a profit. A counter argument might be, "Can the study phase contractor perform the oversight more efficiently, thus offsetting the cost of his profit?" The contractor's staff is often the most familiar with the site and the problem. Some disagree with the concept of having the RI/FS contractor oversee the remedial action contractor. In many cases the study phase contractor does not have the capabilities needed to perform a remedial design and is not capable of overseeing the remedial action. In situations where this is true, a third party contractor would do the oversight of the RD and RA work and would probably act as liaison or provide coordination between the RI/FS and RD/RA contractors.

The RI/FS phase contractor may not have a vested interest in a particular cleanup technology; however, if the contractor is touting his own in-house and exclusive technology, peer review must be thorough to determine if his recommendation is defensible. The RD contractor should normally produce detailed "construction" specifications rather than the "performance specifications" presented in the ROD. The RA contractor might be concerned with overly precise and restrictive construction specifications and procedures if the RD contractor is not familiar with the contractor's exact equipment characteristics. Also, restrictive construction-type specifications can limit the number of qualified bidders, sometimes needlessly. For example, a contract might specify one cleanup unit with a large capacity rather than two smaller units operating in parallel or series. The contractor might be able to provide the smaller units at a lower cost because of their portability or standard production size, but would be excluded from the bidding process because of the contractual requirement to meet the exact specification of the larger unit (this ensures an "apples to apples" comparison of bids).

Approach 3

The third approach is similar to the second, but gives the RD work to the second contractor in addition to the RA. As in the second approach these contracts last 5 or 10 years maximum, and interim and long-term monitoring are given to the first contractor or a third party consultant.

Because change is the norm, particularly in the PA/SI and RI/FS stages of the CERCLA process, flexibility is necessary to solve problems without heavy impact on budget and schedule. The early, most uncertain stages can, in general, be dealt with most effectively by one contractor. The information based on the completed RI/FS and the ROD could be used to prepare performance specifications for the design, installation, operation, and maintenance of the cleanup system during the RD, RA, and SC stages, which would be conducted by a second contractor.

This third approach involves a potential conflict of interest unless the requirements for cleanup developed at the end of the RI/FS process and presented in the ROD are very explicit and include comprehensive performance

specifications. The potential conflict of interest exists because the contractor for the remedial design writes specifications for the work; therefore, that contractor can direct the work to certain contractors, depending on how restrictive the contract specifications are. If this method is used, the agency must have the internal capability to perform an independent verification to ensure proper conclusions are reached. Having a single contractor responsible for the design, installation, and operation of the cleanup can be very efficient. Also, new innovations for cleanup or modification of the cleanup system are more likely since the contractor would be able to incorporate these latest improvements in technology. The use of proprietary and licensed processes are more readily used since they are not specified during a bidding process, but become part of the contractor's proposal.

The responsibility of a workable system belongs to one contractor rather than somewhere between the design and construction contractors. The oversight and interim or long-term monitoring could be performed by the first contractor if he has the required capabilities; if not, the work could be conducted by a third party contractor capable of providing the necessary oversight. It would not be prudent to allow the RI/FS contractor to perform the RD/RA/SC because of cost escalations associated with the vision-impairment syndrome. The best choice of cleanup technology for the study site should not escape the agency's attention or concurrence with the regulatory community where appropriate.

The operational aspect of the cleanup may be carried out by the RA or RD/RA contractor for a short period of time, typically one or two years; then let out for bid to others to continue for longer periods of time. The RD contractor may continue to serve by providing oversight and technical expertise should problems develop.

Approach 4

The fourth approach awards all of the work to one service agency or contractor, who then awards the work to subcontractors. Again, these contracts last 5 or 10 years maximum, and interim and long-term monitoring are awarded to a third party consultant. Currently, a limitation of 5 years is applicable to Service Supply Contracts only.

The fourth approach is viable for underground storage tanks (UST), emergency response, and Resource, Conservation and Recovery Act (RCRA) projects. Work can be well coordinated, and there is a potential for reducing costs. However, there is also a potential for inflating the cost of the required work, particularly during the cleanup stage. In many cases, the execution of a particular cleanup technology under CERCLA can also address many RCRA assessments, closures, or post-closure work (it is simply called by another name). The chance for duplication of effort (and cost) is highest at this point, yet one contractor can handle both efforts.

With any of these alternative approaches, there is little incentive for the contractor to recommend "no further action planned" (NFAP) at a site. Service

agencies may have reason for NFAP because they serve as oversight agents for all stages of work and desire to obtain additional projects by reducing costs (e.g., NFAP) or by speeding up work progress. But this depends on the relationship between the agency and the service agency that manages the contractors performing the work. The drivers of the NFAP alternative are relative risk, and political and liability issues. Similarly, the lack of innovative technologies used in remedial actions to date is due to political and liability issues, designer's uncertainty in applying the technology, and insufficient numbers of qualified subcontractors to perform the work. For the actual contractor performing the work, there will never be an incentive for recommending NFAP, particularly if the ROD or the understanding derived from the FS requires actual cleanup. Therefore, alternative approach (4) is a relatively poor choice if there is a potential for limited or NFAP. On the other hand, no RD/RA is required if NFAP is the selected choice. Also, an NFAP with complicated long-term monitoring does not necessarily require a complicated contract strategy.

4.3 CONTRACTING CONSIDERATIONS AND PRACTICES

Procedures must remain consistent with the NCP and in compliance with the requirements of the National Environmental Policy Act (NEPA). Major commands and service agencies need to work closely with EPA and/or the state regulators as appropriate to utilize alternative approaches (3) and (4). It may even be advisable to have EPA and state regulators participate in the evaluation of the technical capabilities of the proposers.

Most RAs to perform environmental cleanup require many years or even decades to complete. For the preceding approaches to function effectively, either a successful rebid to continue work by both the RI/FS contractor and the RD/RA contractor, or a change in the FAR to extend contracts beyond 5 years will be required. For environmental work, it might be advantageous to award 10-year contracts to maintain corporate memory, even though some personnel may no longer be with the contractor. If a certain individual with site-specific expertise is definitely needed to expedite work or to serve as trouble shooter, that individual's services can usually be obtained through a small sole-source consultant contract.

Although this document is designed to address issues related to CERCLA and SARA, RCRA enforcement may take place within or as part of a CERCLA operable unit. If RCRA assessment, closure, or post-closure work is supported by separate contracts, a means of coordinating RCRA and CERCLA remediations must be found to prevent duplication of effort, yet satisfy different regulatory requirements for CERCLA and RCRA facilities.

Regardless of the approach chosen, hazardous waste cleanup work represents a radical departure from the usual liabilities associated with construction work. Firms are contracted to cleanup problems created by activities conducted by the USAF or by some other contractor who previously performed work on behalf of the USAF. The cleanup contracts often require the cleanup contractor assume responsibility for all materials removed from the site. This

is unacceptable to most contractors. Scopes of work should be as complete as possible. Responsibility for previous work by others, including the RI/FS contractor upon which the cleanup contractor must rely to complete his scope of work, should be clarified. Cleanup contractors are responsible or should be responsible for their own negligent performance, but should not be responsible for past, present, or future RA of the USAF, other potentially responsible parties (PRPs), or other contractors' work on the same cleanup site.

Because risks are borne by both the client and contractor, and both parties desire to complete successful hazardous waste site cleanup contracts, it is essential that both parties have a "win-win" attitude during contract negotiations and contract execution. It is essential that both parties maintain clear, effective communications; be flexible in dealing with unusual or unanticipated site conditions, changes in regulatory requirements or the applicability of existing requirements; and deal immediately and directly with joint concerns.

The IDIQ or TOA contracting mechanism under which work is performed on either a cost-reimbursement or fixed-price through the placement of orders or tasks is being widely used because of the flexibility and short lead times it allows. The time required to initiate work is greatly reduced, since the orders or tasks issued do not have to go through the competitive procurement process, as these requirements are satisfied in advance through the competitive placement of the IDIQ. Flexibility is allowed because different contractors can be used depending on their capabilities in terms of their expertise and workload. Work structure permits further flexibility: one contractor may perform all phases in the environmental restoration process, of just one phase, or merely oversee the process, since work is tasked out via individual orders. Several IDIQ contracts are placed with different environmental services firms in different geographic regions. Each firm provides a variety of services for work in all phases of the cleanup process. The period of most of these agreements is 5 years--the maximum allowed under the government procurement requirements, unless a waiver is obtained. Waivers have been obtained by some agencies, and in those instances the maximum period is 10 years. Usually, one or more "alternate" IDIQ contracts are also placed and used periodically to 1) provide the option of going to a different firm should the services of another firm not be desired, and 2) serve as an incentive for quality performance since there are other firms readily available to provide the services.

The primary advantages (as identified by the service agencies) to the USAF in establishing IDIQ contracts to perform its environmental restoration projects, as opposed to contracting a service agency, include the following:

- IDIQ contracts provide the USAF with direct control of their projects.
- With a contract in place, the USAF has more recourse to ensure work is performed.
- There are no concerns that work will be turned down, since the USAF controls the prioritizing and scheduling of projects and contractor work, and a variety of firms are available to perform work.

- There are no service agency charges or fees.
- IDIQ contracts can be specifically designed to meet USAF requirements.
- The full range environmental services IDIQ contract(s) must be established by the USAF. This process may require several months to meet government procurement requirements.
- IDIQ contracts may already be in place at the service agencies.

The primary advantages of contracting a service agency include:

- Service agencies have substantial experience in all aspects of the environmental restoration process, including how to contract for this work, and accordingly, have well established funding and contracting mechanisms.
- Since the majority of the agencies were specifically established to implement environmental restoration projects, they have assembled trained technical, project management, and contract personnel.
- Oversight, monitoring, and administering all technical and contractual aspects of the projects and contracts is centralized.

4.4 OBSERVATIONS AND ISSUES FROM SITE VISITS

There were several issues raised and observations made during the course of the visits to the service agencies. A discussion of these issues and observations follows.

Agencies are experiencing substantial workloads. The following reasons were discussed:

- There is a tremendous amount of HTW work and it is expected to increase dramatically as CERCLA projects move from the RI/FS phases into the RD/RA phases, the cleanup of the DOE sites gets under way, and the RCRA program grows.
- Agencies perceive a lack of planning by their clients. Lack of planning can result in the following impacts on service agencies: schedules are often significantly compressed; funding is often late and expires if it is not obligated within a certain timeframe; clients are unaware of the many requirements that must be satisfied and the amount of time necessary to do so; clients fail to bring pending projects to the attention of agencies early enough; clients request a number of changes to projects because they are unsure of their ultimate objectives and how to accomplish them. Service agencies also feel that EPA establishes very optimistic, and sometimes unrealistic, cleanup schedules because of budget requirements and/or political and public pressure without considering the hazard at a site. (Actually only about 5% of the sites are considered to pose immediate health hazards requiring expedited cleanup schedules.)

- There are extensive EPA and government procurement requirements that must be met, some of which continually change and sometimes conflict. Additionally, substantial involvement by the EPA, the state, and the public throughout the cleanup of sites is required. This involvement often creates delays that adversely impact projects--information becomes outdated, costs escalate and change, requirements change.
- Some agencies do not establish ceilings on the amount of funding/number of projects they accept but they do have ceilings on the number and/or type of staff they can hire and are often shorthanded, particularly in contracts staff. Some agencies are not selective in the number of clients they serve and/or the projects they accept.

Following is a discussion of the advantages and disadvantages to clients of having service agencies perform cleanup (see Section 2.3).

The advantages are:

- Service agencies possess substantial agency and staff expertise in all aspects of the environmental cleanup process, including contracting.
- Service agencies have well established funding and contracting mechanisms.
- They are independent, unbiased, and work very closely with their clients to promote joint control of projects.
- Many provide "one-stop shopping" because they implement and manage most or all phases of the cleanup process.
- Many are able to draw on a variety of support staff from a larger organization that can provide quality assurance (QA), safety, technology assessments/deployments, etc.
- Most are established with one mission: to conduct environmental cleanup of government projects.
- They possess a variety of personnel (technical, scientific, project management, contract management) skilled in the implementation of hazardous waste cleanup projects.
- An economy of scale is realized and duplication of effort is eliminated through the centralization of services in one organization in one location.
- They are able to adjust the size and mix of their staff to implement and manage a project depending on its scope and complexity.

The disadvantages are:

- There is a cost for the services provided by the service agency, depending on the agency; however, this cost may be balanced by the cost incurred, directly or indirectly, by the USAF providing the services.
- Depending on the agency, some can serve only one client.
- Direct or "hands-on" control of the project by the ordering agency is lost, because the service agency is managing the project. However, the ordering agency does exert control through funding and approval of statements of work.

Client attitudes toward the cleanup of their HTW sites vary. Most are primarily concerned about appropriate and effective cleanup of their site(s) within established schedules. Some are concerned about the obligation of funds and/or number of project starts because of their funding system requirements or EPA mandates, and, consequently, place more emphasis on the ability of the agency to accomplish these objectives versus their management of cleanup projects. Typically, clients use a service agency because the client lacks the capability in-house—either the specialized technical, project management, contracting experience and expertise, or the staffing—required to undertake HTW cleanup projects. The client's mission is not in the HTW cleanup area. They typically do not want to be involved in the day-to-day activities, and therefore, they rely on the service agency to keep their best interests in mind by managing the cleanup project appropriately, quickly, and economically while minimizing liability.

Service agency attitudes toward their contractors vary as well. Most agencies feel their contractors are well qualified and committed to proper cleanup of sites. However, cost estimates in proposals from some of their contractors must be closely scrutinized because they tend to "pad" the estimate by including unnecessary personnel, such as firm principals or executive officers, or by replacing key or more expensive personnel with less expensive personnel. The same cost issues seem to continually arise and, consequently, the contractor's commitment to the agency and the project is questioned. Some contractors must try to reduce their indirect costs, such as general and administrative expenses, and are looking for means to accomplish this, such as more direct charging.

The IDIQ or BOA/TOA contracting mechanism under which work is performed through the placement of orders or tasks is widely used. This contracting mechanism reduces the time required to initiate work, since the orders or tasks issued are not sent through the competitive procurement process. (Procurement requirements are satisfied in advance through the competitive placement of the IDIQs.) Typically, there are several IDIQ contracts in place with different firms, each providing a variety of remedial services, usually for work from all phases in the cleanup process and covering different geographic regions. The duration period for most of these agreements is 5 years—the maximum allowed under the government procurement requirements, unless a

waiver is obtained. Waivers have been obtained by some agencies, and in those instances the maximum period is 10 years duration. Usually, one or more "alternate" IDIQ contracts are also placed and used periodically to 1) provide the option of going to a different firm should the services of another firm not be desired, and 2) serve as an incentive for quality performance since there are other firms readily available to provide the services.

Some IDIQ agreements are established to provide one specific type of service (i.e., enforcement, emergency response), and some have minimum and/or maximum numbers of hours or dollars to be ordered. Most IDIQs contain all applicable requirements (e.g., fixed-price, cost-reimbursement; Davis-Bacon Act; Service Contract Act; etc.), which can be referenced in the task or order, depending on the nature of the work to be performed. When on a cost-reimbursement basis, "completion" type orders or tasks are typically issued, meaning that work will be funded until the task is completed or deliverable, even if additional funding is required for completion. Often, work will be competed between firms to promote the best estimate.

When schedule is not a factor, site-specific contracts are preferred because they are tailored to meet the needs of a particular site. To decrease the time required to place these contracts, "generic" or "boilerplate" contract packages have been developed, and a prequalified pool of remedial services firms has been established to whom requests for proposals are issued. Usually, project schedules cannot accommodate the time required for site-specific contracts, so there are few of these types of contracts.

Many contracting requirements (e.g., Davis-Bacon Act, Service Contract Act, Brooks Act, etc.) are dictated by the type of work to be performed (see Appendix A for more information on key requirements and their applicability). Therefore, the definition of work can significantly impact the contracting requirements and the time required to meet them. The agencies appear to experience some difficulties in implementing these requirements. These difficulties involve attempting to implement long-term requirements in projects with compressed schedules. Also, there are inconsistencies in the application of these requirements among the agencies because of different definitions of the types of work to be performed and/or different interpretations of when certain requirements apply.

Another approach to contracting site cleanup uses one remedial services contractor throughout the cleanup process--from the PA/SI through the RD/RA. Each phase is issued to the contractor separately as individual tasks or orders under the IDIQ contract with that contractor. This contractor does not conduct the RA, but does oversee its performance. This approach is preferred because it fosters continuity, since the same contractor has been involved from the outset. Often information generated by one contractor is insufficient for the follow-on contractor. It also helps ensure the RA contractor conducts the RA according to the RD, and serves to provide incentives to the contractors, since they have the opportunity for more work providing their performance is of high quality.

Most agencies are familiar with the range of contract types but have a preference for one type (i.e., either cost-reimbursement or fixed-price) because of an established history. An agency's policies (such as approval thresholds) and experience with one type of contract make it difficult to use another type. Cost-reimbursement contracts were considered more conducive to the PA/SI and RI/FS phases because of the lack of site information during these phases. Lack of site information was felt to be the single most critical factor in contract type selection. A number of changes to the SOW are typically required during these phases because information about site conditions becomes available that is very different from what was previously known. Consequently, flexibility in the contract is necessary to accommodate these changes. Agencies required to contract for these phases on a fixed-price basis find they must incorporate an option into the order for every conceivable occurrence. By doing so, they build in some flexibility for handling the changes that seem to invariably arise during these phases. These agencies are beginning to explore using a cost-reimbursement type of contract for these phases.

Detailed cost estimates from contractors and a detailed government estimate with which to evaluate contractors' estimates are very valuable. Most agencies are capable of preparing such estimates because they have data and experience in the HTW area, although some agencies often have insufficient time to prepare thorough estimates.

Project managers are typically assigned on a client basis, while contract managers are assigned on a contractor basis. Project managers ensure that the objectives of the project are accomplished and that the needs of the client are met; the contract managers ensure that the contractor's performance and costs are consistent with the contract requirements. These assignments and functions provide a good check and balance because the contract manager becomes very knowledgeable of the contractor's operation which ensures continuity and consistency in contractor performance.

All agencies felt that the team approach to contracting site cleanups was a necessity. Treating the contracts staff and the contractor as members of the project team by involving them early in the process was found to help build a long-term team relationship and commitment. Early involvement of the contracts staff provided planning time and greatly expedited the many procurement requirements, which was especially important in those projects on tight schedules.

Appraisals of contractor performance, both during and at the conclusion of the project, were found to be very useful in promoting continued quality performance or in improving performance, providing the appraisals are relatively simple (i.e., staff making the appraisals do not have to prepare extensive documentation). Most contractors are very concerned about their reputation. They recognize there is a vast amount of work and funding in the HTW area, and competition for this work is great due to the number of firms in the business.

Several agencies commented that an overanalysis of remediation alternatives takes place, thereby increasing the costs of the project unnecessarily. Typically, 30 to 40 remediation alternatives are identified and investigated, even though only a handful are considered realistically available or viable by the industry.

Several agencies commented that contracting the cleanup of HTW is so unique that the FAR requirements, as currently written, do not meet the contracting needs of those involved in this work. Therefore, industrial and government entities involved in HTW cleanup should approach the FAR council about developing a different set of contracting requirements.

**APPENDIX A - KEY ACTS AND FEDERAL REGULATIONS
AND RELATED ISSUES**

APPENDIX A - KEY ACTS AND FEDERAL REGULATIONS AND RELATED ISSUES

Appendix A presents the key federal acts that must be considered when contracting for environmental restoration work, and outlines key requirements, applicability, and issues. It was noted during the site visits that there are differing interpretations and, thus, differing applications of the requirements; therefore, Appendix A does not provide advice as to when the requirements should be applied.

A.1 DAVIS-BACON ACT

The Davis-Bacon Act regulates wages and fringe benefits of mechanics and laborers employed in the construction industry when performing government work involving labor and materials in excess of \$2K.

A.1.1 Key Requirements

Under the Davis-Bacon Act, the Secretary of Labor determines that either a "general wage" or "project wage" will be used and the predetermined wage scale must be prominently posted at the project worksite. The wage payments must occur no less frequently than once per week and regulations require that weekly payroll statements are submitted to the Contracting Officer (CO) for retention for a period of 3 years. Violation of the statute can cause contract termination or debarment.

The CO is responsible for enforcing the Davis-Bacon Act and has the authority to conduct compliance checks and investigate violations. The CO may withhold from payments due the contractor such amounts as are necessary to correct violations. The CO is responsible for requesting "project wage" determinations when wage patterns cannot be easily identified under the "general wage" determination (use Department of Labor [DOL] Standard Form 308). The CO is responsible for determining the validity of "project wages" during the procurement cycle and subsequent contract award.

A.1.2 Applicability

The Davis-Bacon Act applies specifically to government construction contracts, which include contracts for construction, alteration, and/or repair, including painting and decorating public buildings or public works of the United States or the District of Columbia. In general, the Act has not been applied to demolition and clearance contracts, however, it has been applied in situations where demolition was part of a construction project. Contracts involving both construction and the furnishing of supplies or services are applicable only where the construction aspects of the contract are considered "substantial" and not merely "incidental."

A.1.3 Key Issues as Related to Environmental Work

The Davis-Bacon Act does not apply to environmental work for paper studies or field work. It applies to construction of permanent structures such as

treatment facilities (e.g., air strippers) and permanent monitoring wells. (Air strippers have been considered permanent because they are generally in operation for several years or more.)

A.2 SERVICE CONTRACT ACT

The Service Contract Act requires that contracts contain provisions for specifying 1) the minimum monetary wages to be paid to federal contractor or subcontractor employees, 2) the fringe benefits to be furnished, 3) that work will not be performed in unsanitary conditions, 4) a requirement for notification to the employee of compensation, and 5) whether rates being paid by the federal government to its own employees for similar work are applicable.

A.2.1 Key Requirements

Under the Service Contract Act the Secretary of Labor determines the wages and fringe benefits and whether the federal pay scale is applicable. Wage and benefit determination by the Secretary is based upon the prevailing wage rates and fringe benefits for those employees "in the locality" (where the work is to be performed). However, a collective bargaining agreement takes precedence, but in no case will wages be lower than required by the Fair Labor Standards Act. The Act also addresses the applicability of current wage determinations in relation to successor contractors and their contractors.

The Department of Labor only, and not a contracting agency, can resolve wage classification issues under the Service Contract Act. The CO is responsible for identifying whether a prospective contract is subject to the Act. If so, the CO will notify the appropriate office of the Department of Labor (using Standard Form 98), and incorporate the appropriate provisions into the solicitation and contract. The CO is required to file and maintain the validity and effectiveness of "project wage" determinations during the procurement cycle and subsequent contract award, as outlined in the Act. The Act provides authority to the procurement agency to withhold monies against sums otherwise due the contractors for any deductions, rebates, refunds, or underpayments in violation of the Act. Sanctions for violations of the Act include contract termination and 3-year debarment.

A.2.2 Applicability

The Service Contract Act is applicable to service contracts exceeding \$2500 for furnishing services through the use of service employees to the federal government and District of Columbia (labor and fringe only; materials not counted toward total) within the "United States," as defined within the Act. The definition of a "service employee" may be found in 29 CFR Part 541. These employees include guards, watchmen, any person engaged in a recognized trade or craft or other skill or mechanical craft; or in unskilled, semiskilled, or skilled manual labor occupations. Some exemptions are defined within the Act such as services where published tariff rates are in effect, public utility services, and services subject to other Acts. Construction contracts subject to

the Davis-Bacon Act are also exempt except the Department of Labor will apply the Service Contract Act where the Davis-Bacon Act will not otherwise be applied.

A.2.3 Key Issues as Related to Environmental Work

The Service Contract Act does not apply to paper studies in the area of contracts for environmental work. Also, determinations are made for all contracts under which more than five service employees are to be employed. The Act may or may not apply to related field work, depending on who is performing the work and the method used. For example, if soil samples are being taken by a geologist using a hand auger, the Act would not apply because the geologist is considered a professional, not a manual laborer. The effort, therefore, is considered incidental. However, if soil samples are being taken by an equipment operator (e.g., well driller, driller's helper, roustabout, etc.), the effort is recognized as being a part of a trade or craft or mechanical craft and, therefore, the Service Contract Act applies. A monitoring well for sampling pursuant to a paper study would be subject to the Act; however, monitoring wells placed in support of (and preceding) a "construction" effort may be subject to the Davis-Bacon Act as opposed to the Service Contract Act.

A.3 BROOKS ACT

The Brooks Act regulates architectural and engineering (A&E) services contracts.

A.3.1 Key Requirements

The federal government publicly announces all requirements for A&E services and negotiates contracts on the basis of demonstrated competence and qualifications for award at fair and reasonable prices. Compliance with the stated procedures will constitute a competitive procurement of A&E services.

Procedure

The Act requires A&E contractors to file with the appropriate office the Standard Form 254 (SF-254) "A&E and Related Services Questionnaire," or when applicable, Standard Form 255 (SF 255) "A&E and Related Services Questionnaire for Specific Project." (An SF-255 is used when the contract amount is expected to exceed the small purchase limitation.)

The offices maintain A&E qualifications data files. Classification is based on location, specialized experience, professional capabilities, and capacity with respect to the scope of work.

Files are reviewed yearly and firms should be encouraged to annually submit updated statements of qualification and performance data on an SF 254. Contract awards made to the firm in the past year are recorded. In addition, information which is no longer pertinent or has not been updated within the past 3 years is discarded. The date of the review is then posted in the file.

Selection Criteria

The Act requires agencies evaluate potential A&E firms based on the following:

- professional qualifications necessary for satisfactory performance of required services
- specialized experience and technical competence in the type of work required
- capacity to accomplish the work in the required time
- past performance on contracts with government agencies and private industry in terms of cost control, quality of work, and compliance with performance schedules
- location in the general geographical area of the project
- knowledge of the locality of the project
- acceptability under other appropriate evaluation criteria.

Design competition may be used when approved by the selection authority for evaluation of firms if 1) unique situations exist involving prestige products, 2) sufficient time is available for the production and evaluation of conceptual designs and, 3) the design competition, with its costs, will substantially benefit the project.

Selection Process for Contracts Expected to Exceed \$25,000

The Preselection Board. Develops and adopts an evaluation procedure and conducts an evaluation. The Evaluation factors should be the same as those that appeared in the Commerce Business Daily synopsis. Review the current data files on eligible firms and responses to a public notice concerning the particular project. Based on the evaluation, a preselection list of the maximum practicable number of qualified firms is prepared.

The Selection Board. Makes recommendations for final selection of prospective firms from the list provided by the preselection board.

Uses the following procedures in making its selections;

1. Analyze the SOW; determine the specific professional qualifications and capabilities considered necessary for satisfactory accomplishment of work and services needed; develop and adopt a basic evaluation form for the competitive evaluation of the qualifications required; and develop a point system from which to evaluate the A-E firms based on the evaluation factors under consideration.

2. To ensure objectivity, each firm under consideration will be evaluated on the basis of the information contained in the SFs 254, 255, and DD Form 1421 and other data requested in the CBD synopsis.
3. The evaluation factors should be tailored to the specific project.
4. Conducts discussions, either oral or written, with the firms under consideration by the board for selection in order to prioritize the listing.
5. The chairperson submits to the responsible selection authority a summarization of the selection board actions. The summary includes a prioritized list, or final slate, in order of preference, a minimum of three A-E firms considered to be the best qualified, for approval.

The Selection Authority. Shall review the recommendations of the evaluation board and shall, with the advice of appropriate technical and staff representatives, make the final selection. This final selection shall be a listing, in order of preference, of the firms considered most highly to perform the work. The selection authority shall not add firms to the selection report. All selections for a contract in which the estimated fee exceeds \$500,000 need the approval of the HQ USAF Director of Engineering and Services.

Short selection process for contracts not to exceed the small purchase limitation.

Either short selection process may be used to select firms for contracts not expected to exceed \$10,000.

- a. Selection by the board. The board shall review and evaluate A-E firms IAW FAR 36.602-3, except that the selection report shall serve as the final selection list and shall be provided directly to the CO. The report shall serve as an authorization for the CO to commence negotiations.
- b. Selection by the chairperson of the board. When the board decides that formal action by the board is not necessary in connection with a particular selection, the following procedure shall be followed:
 1. The chairperson of the board shall perform the functions required in FAR 36.602-3.
 2. The agency head or designated selection authority shall review the report and approve it or return it to the chairperson for appropriate revision.
 3. Upon receipt of an approved report, the chairperson shall furnish the CO a copy of the report which will serve as an authorization for the CO to commence negotiation.

For a contract, the fee for which is estimated to be between \$10,000 and \$25,000, the selection of the A-E is made by a single, formally constituted board as described in paragraph a. above.

Performance Evaluation (A-E Contracts)

For each contract of more than \$25,000, performance evaluation reports shall be prepared by the cognizant contracting activity, using the DD Form 1421, Performance Evaluation (A-E). Performance evaluation reports may also be prepared for contracts of \$25,000 or less.

1. A report shall be prepared after final acceptance of the A-E contract work or after contract termination.
2. A report may also be prepared after completion of the actual construction of the project.
3. Interim reports may be prepared at any time.

Distribution and use of performance reports. (Referred to as the A-E Contract Administration Support System (ACASS)).

1. Forward each performance report to the U.S. Army Engineering Division, North Pacific, ATTN: CENPD-CT, P.O. Box 2870, Portland, OR 97208-2870.
2. Retrieve all performance records on file in the central data base for all prospective contractors that have a reasonable chance of being selected. Used in the selection process.

A.3.2 Applicability

Architectural and engineering services include the following areas relating to the construction, alteration, or repair of real property including professional services, as defined by state law which require a person licensed, registered, or certified to provide such services:

- other professional services associated with research, planning, development, design, construction, alteration, or repair of real property that the CO determines are of an architectural or engineering nature
- other professional services of an architectural or engineering nature (including surveying and mapping, plans and specifications, value engineering, construction phase services, soils engineering, drawing reviews, preparation of operating and maintenance manuals and other related services)
- other incidental services (including studies, investigations, tests, evaluations, consultations, comprehensive planning, program management, and conceptual design).

Architectural and engineering services typical in the environmental restoration area include

- topographical surveys
- geophysical surveys
- environmental surveys
- licensed engineers (i.e., mechanical, electrical, structural, etc.)
- data validation.

Nonpersonal services not requiring A-E qualifications. The Brooks Act does not apply to such professional services as making technical studies, analyses, surveys, investigations reports, and environmental analyses where the professional expertise required does not necessitate licensing as an A-E, unless those professional services are an integral part of a contract for other A-E services. Sealed bidding or negotiation would be utilized to acquire these services.

Small business considerations. All A-E contracts \$50,000 or less are set-aside for Emerging Small Business. (OFFP notice effective 15 Oct 1991) A-E contracts expected to exceed \$50,000 are considered for Small Disadvantaged Business set-asides or A-E firms in the Small Business Administration 8(a) program.

A.3.3 Key Issues

In accordance with the Brooks Act, the evaluation of an A&E firm is based on technical criteria. Final cost is negotiated and therefore, the agency may pay a higher cost to select firms with a proven performance record.

A.3.4 Applicable Statutes

The Brooks Architect and Engineers Act, 40 U.S.C., Section 541, Public Law 92-582, October 27, 1972, 86 STAT. 1278, FAR 36.6.

A.4 INSURANCE

Insurance is necessary to protect the contractor and the government from loss because of third party suits alleging negligence during cleanup activities.

A.4.1 Key Requirements

Insurance is addressed in FAR 28.301 which states that contractors shall be required to carry insurance for risks they are exposed to. Contractors have not had much success in obtaining indemnification from the government for hazardous waste cleanup, and there is a lack of availability of appropriate

insurance coverage. Thus it is very difficult and costly for contractors to conduct business in areas that have potential pollution risk.

A.4.2 Applicability

Although the government is not ordinarily concerned with the contractor's insurance coverage if the contract is a fixed-price contract, FAR 28.306 provides that insurance requirements may be specified under the following circumstances:

1. the contractor is engaged principally in government work
2. government property is involved
3. work is to be performed on a government installation
4. the government elects to assume risks for which the contractor ordinarily obtains commercial insurance.

It should be recognized however, that requirements for insurance coverage can be met only to the extent that insurance coverage is available and affordable to the contractor.

Under cost-reimbursement contracts, the FAR clause 52.228-7, Insurance Liability to Third Person is required for other than construction and A&E contracts unless the CO waives the requirement for use of the clause. The FAR clause 52.228-7 states that the contractor shall be reimbursed for the following costs:

1. the cost of insurance allocable to the contract
2. for certain liabilities to third persons arising out of performance of the contract including the loss or damage to property, and health or bodily injury.

Historically, it is this clause that the contractors involved in hazardous waste cleanup have looked to in mitigating their risk.

A.4.3 Key Issues Related to Environmental Work

The private sector relies on commercial liability insurance to offset liability risks (for example, third party suits) arising from their business activities. However, the insurance industry has been unwilling to provide affordable and adequate pollution insurance coverage to businesses engaged in hazardous waste cleanup. The liability exposures that the cleanup contractors face are 1) damages which have already occurred, and 2) possible additional damage in the future arising out of negligent actions at the present. While there is limited insurance coverage available, in general the insurance industry has taken the position that they will not provide pollution insurance until the government modifies the strict liability provision (liability for damage that has already

occurred) of the Superfund law. The position of the insurance industry is that it is not possible to provide insurance for damage which has already occurred. Congress's position appears to be that the insurance industry will eventually provide a funding mechanism by developing methods for collecting adequate premiums to pay for claims.

Lack of fully available, adequate and affordable pollution insurance for the hazardous waste management industry may cause prudent qualified firms to withdraw from business activities that have potential pollution risks. This withdrawal could lead to delayed cleanup and reduce the quality of cleanup.

A.5 INDEMNIFICATION

The nature of a contractual indemnification is to transfer the cost or risk of damages or the loss from those damages from one party to another. It does not, however, transfer ultimate legal responsibility if the granter of the indemnity cannot pay.

A.5.1 Key Requirements

The risks to be transferred through indemnification are commonly expressed as liability for damages. The types of damages are as follows:

- Direct damages - Losses that immediately follow the act.
- Consequential damages - Losses that do not immediately follow the act but are the consequences or results of the act.
- Punitive damages - Damages awarded over and above what will compensate for loss.
- Incidental damages - Expenses incurred as a result of a breach.

A.5.2 Applicability

Contractors want to pass along to the government any liabilities associated with performing work as the cost of doing business. In the allocation of liability, the contract type plays a key role in determining the extent to which contractors are successful in allocating liability to the government. Firm-fixed-price contracts provide little basis for passing along these costs. Unless a contract has a clause providing for indemnification (FAR 52.250-1), the contractor will have to bear the costs because the standard FAR clauses for firm-fixed-price contracts provide no method for reallocating these costs. Cost-reimbursement contracts provide greater ability to have such costs as fines, penalties, or third-party claims reimbursed as allowable costs.

Just as significant as contract type, however, is the attitude of the government agency. Clearly, there have been differences in how various federal agencies approach the issue of indemnification. For example, until recently, the U.S. Department of Energy (DOE's) policy for its management and operation (M&O)

contracts has been to pay for virtually all contractor penalties, settlement payments, and related legal costs involving environmental liabilities unless they are incurred as a result of willful misconduct or lack of good faith. New DOE M&O contracts provide limited indemnification. On the other hand, U.S. Department of Defense (DOD) has taken a stricter view. It is DOD policy not to indemnify contractors for penalties, settlement payments, or related legal costs. DOE often takes this position with its non-M&O contractors.

A.5.3 Key Issues Related to Environmental Work

Environmental contractors are exposed to a wide array of liability for remediation of hazardous substances, often without fault or causation. Congress responded to this concern by giving the U.S. Environmental Protection Agency (EPA) the power to indemnify its contractors against their negligence, under certain circumstances. The 1986 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) amendments add Section 119 providing EPA with the discretion to indemnify and hold harmless a contractor from and against his negligence. To obtain this coverage, the contractor must have made efforts to obtain insurance and found that it was not available at a fair and reasonable price. To date, the Government Accounting Office (GAO) has been critical of EPA's liberal indemnification of contractors, given the fact that contractors are performing work for other federal agencies and states without indemnification. GAO has proposed that in competitive bids, indemnification requests be assigned a cost which is considered before awarding to the lowest bidder. However, GAO's proposal may present problems in recruiting qualified contractors.

The issue of indemnification for environmentally related costs is complex and controversial. Resolution of the issue may result from future developments within federal agencies and in Congress.

A.6 MILLER ACT

Payment and performance bonds are mandatory under the Miller Act (40 U.S.C. 270a - 270f) for all federal construction projects exceeding \$25K. Sureties are required since the Miller Act (40 U.S.C. 270a-270f) mandates performance bonds for construction contracts exceeding \$25K, and because FAR Part 28 provides for payment bonds when a performance bond is required.

A.6.1 Key Requirements

Under the Miller Act, bonds are instruments for reducing the risk to the government that construction projects will not be completed. The bonds are also used in some circumstances to ensure performance on service contracts although they are not mandatory. The bonding requirement is waived if contract performance is in a foreign country. Other key requirements include the following:

1. Required bonds must be provided and approved prior to the contractor starting work, and prior to the issuance of a notice to proceed.
2. Failure to evidence required bonding is grounds for rejection of bids/proposals.
3. Performance bonds, unless the CO determines otherwise, shall be 100% of the original contract value.
4. Payment bonds are required only when a performance bond is required. FAR Part 28 provides guidance on payment bond amounts.
5. Additional bonding amounts may be required for both performance and payment bonds, if the contract value is increased.

The CO may accept a bond of less than 100% of the contract value. The basic guidance in the CO decision to accept bonds for lesser amounts is the risk to the government and the protection of the government's interests.

A surety can be a corporation or an individual legally-bound and liable as a third party for a contractor's debt, default, or failure to satisfy a contractual obligation (performance payment). The surety essentially "stands in the shoes" of the contractor to guarantee work completion, and to protect the government from risk and financial loss.

A.6.2 Applicability

The requirement for performance and payment bonds on government construction contracts exceeding \$25K is not influenced by the contract type, i.e., fixed-price, cost-reimbursement, indefinite quantity.

Sureties are applicable whenever bonding is a factor, and particularly for all hazardous and toxic waste (HTW) remediation and cleanup projects as a direct result of the bonding requirements.

A.6.3 Key Issues Related to Environmental Work

The HTW cleanup industry may be concerned about obtaining bonding and surety support for remedial action projects providing construction, due in part to the perception that the state of the art of remedial action technology is so dynamic that design change is inevitable, and in part to the perception that long-term third-party liability considerations place bonding sureties in a position akin to insurers. Other key issues include

- Elements of the Davis-Bacon Act, Service Contract Act, and the Miller Act almost always co-exist within a construction/remedial action scope of work. Isolating task elements is essential to identifying the portion of the contract value which requires bonding under the Miller Act (construction).

- Reliance on DOL decisions is mandatory.
- Bonding requirements may limit competition, and recent studies show that many firms which could participate in HTW cleanup projects did not, due to bonding requirements.
- Bonding factors are essential to planning activities. Projects have been delayed due to shortages of contractors because of bonding problems.
- Decreased competition, due to bonding requirements, may significantly increase project cost estimates/actuals.
- Studies show that bonding is becoming increasingly difficult for contractors to obtain when HTW cleanup is involved.
- Separation of construction tasks from other scope of work activities is proving an effective technique in limiting bonding amount requirements, and may be imperative to accepting a maximum-competition scenario in HTW cleanup projects.
- This effort can reduce the problems bidders have in locating sureties because it limits financial exposure.

Sureties are an essential and integral factor in contracts and activities related to HTW remediation and cleanup work. Key issues include:

- HTW cleanup contractors have problems obtaining sureties for remedial action construction projects.
- Surety reluctance is predicated on its perception of high risk due to possible long-term third-party exposure, and a dynamic cleanup technology which leads to considerable change.
- Sureties seem to make bonds available to select major contractors with which they have other considerable business, which have significant assets, and which have an outstanding performance records on HTW cleanup contracts.
- The high level of surety selectivity creates a small group able to compete for HTW projects.
- Sureties want to clarify that the surety performance bond is for the guarantee of performance, and not as an insurance policy for third-party liability suits.
- Sureties are concerned about the technological unknowns associated with HTW cleanup.

- Changes in the work, which increase the contract value, are viewed pessimistically by sureties because they increase their obligations and risks.
- A July 1990 Corps of Engineers study concluded that few sureties are interested in providing bonding for HTW projects.
- A "frozen-design" can provide assurances to sureties and may also increase competition due to contractor ease in obtaining necessary bonding.

Applicable Regulations

Federal Acquisition Regulations (FAR) Part 28-Bonds and Insurance; Miller Act (40 U.S.C. 270a - 270f); Davis-Bacon Act (40 U.S.C. 276a - 276c); McNamara - O'Hara Service Contract Act; and CERCLA, as amended by Superfund Amendments & Reauthorization Act (SARA).

A.7 ORGANIZATIONAL CONFLICTS OF INTEREST

By definition, an organizational conflict of interest (OCI) "exists when the nature of the work to be performed under a proposed contract may, without some restriction on future activities, (a) result in an unfair competitive advantage to the contractor or (b) impair the contractor's objectivity in performing the contract work." (FAR 9.501).

A.7.1 Key Requirements

Contractors must evaluate each actual or potential OCI and provide full disclosure to the government. It is the responsibility of the government CO to evaluate potential OCIs and, where determined to exist, develop measures to avoid, mitigate, or neutralize the potential OCIs prior to contract award.

A.7.2 Applicability

The types of contracts where OCIs are most likely to occur are: "(1) Management support services; (2) Consultant or other professional services; (3) Contractor performance of or assistance in technical evaluations; or (4) Systems engineering and technical direction work performed by a contractor that does not have overall contractual responsibility for development or production." (FAR 9.502).

A.7.3 Key Issues as Related to Environmental Work

The important aspect to watch for in the area of OCIs is not only an actual OCI, but the appearance of an OCI. In fact, the appearance of an OCI can often cause more problems than an actual OCI.

Particularly relevant sections of the FAR are 9.505-1 and 9.505-2. In the area of contracts for systems engineering and technical direction, an OCI can occur

based on definitions within the referenced FAR sections. Systems engineering can include determining specifications, and technical direction can include developing work statements which could encompass remedial design activities. The issue then becomes whether the same contractor can be involved in the remedial action. The key factor for an OCI occurring is the ability to influence decisions favoring a contractor's own products or capabilities. This situation can be avoided if a contractor fits the definition of a development and design contractor. It is recognized that a development and design contractor will have a competitive advantage over others due to their intimate knowledge of the design and ability to start a project sooner. There is not a prohibition on competitive advantages, only *unfair* competitive advantages. Based on this exception, it is arguable that a contractor who has the contract for the remedial design can also have the contract for the remedial action.

Again, what must be considered is the appearance of an OCI. It is important for the CO to adequately document the file by identifying the potential OCI and providing the analysis as to why an OCI does not exist (FAR 9.507). The documentation needs to address the issue of impairment of the contractor's objectivity in performing the work. This area obviously is open to the appearance of an OCI. The specific circumstances of the procurement will guide this issue.

It is important to remember to include appropriate language in the solicitation and resulting contract regarding OCIs (FAR 9.508). As an example, the 1990 National Contingency Plan, which is the major framework regulation for the federal hazardous substance response program, requires that solicitations request information about the status of the prime contractor, their subcontractors, parent companies, and affiliates. It is appropriate to include such a request when applicable.

A.7.4 Applicable Regulation

Federal Acquisition Regulation - Subpart 9.5 - Organizational Conflicts of Interest.

APPENDIX B - SITE VISIT SUMMARIES AND OBSERVATIONS

APPENDIX B - SITE VISIT SUMMARIES AND OBSERVATIONS

B.1 SUMMARIES

The first part of this appendix includes background, contract and technical information and key contacts for the seven service agencies visited.

B.1.1 United States Air Force, AF Center for Environmental Excellence (AFCEE)

Address: AFCEE
Building 1160
Brooks AFB, TX 78235-5000

Points of Contact: Lt Col Charles W. Scott, Director
Environmental Restoration Division (ESR)
Building 624W
Brooks AFB, TX 78235-5000
Telephone: (512) 536-9001
Facsimile: (512) 536-9026

Mr. Donald G. Ward, Director
Environmental Contracting (HSD/PKV)
Building 626
Brooks AFB, TX 78235-5000
Telephone: (512) 536-9315
Facsimile: (512) 536-9335

Size of Organization: 300

Background Information

The United States Air Force Center for Environmental Excellence (AFCEE) was established on July 1, 1991, at Brooks Air Force Base, Texas under the jurisdiction of the Air Force Civil Engineer. AFCEE was created with the vision of aggregating expert leadership, technical talent and leading edge technologies to facilitate environmental restoration of Air Force installations by the year 2000, and to become the acknowledged DOD leader in environmental clean-up. The core purpose of the AFCEE is to provide unsurpassed technical, management, legal and contracting services for execution of environmental restoration programs throughout the Air Force. AFCEE has a full spectrum of environmental capabilities including the following: Preliminary Assessment and Site Investigation (PA/SI), Remedial Investigation and Feasibility Study (RI/FS), Remedial Design (RD), Remedial Action (RA), Long Term Monitoring, Base Realignment and Closure (BRAC), Pollution Prevention and Environmental Planning.

The Environmental Restoration Division (ESR) of the AFCEE provides environmental investigation and cleanup services. Total annual funding to ESR in the past had been \$30M to \$40M increasing to \$115M obligated in FY91. Funding

for FY92 is expected to increase to \$250M due to the expansion in the scope of services to be provided, the increase in staff and capabilities and the transition of projects to the RD/RA phase. Many of the restoration projects managed by ESR are rapidly completing the RI/FS phase and moving to the RD/RA phase.

Restoration projects are typically funded through either the Defense Environmental Restoration Account (DERA) or with BRAC. Funds are transmitted to ESR by their customers via an AF Form 616. ESR transmits the funds for contract support to the contracting office via a purchase requisition.

Two challenges typically encountered when conducting restoration projects are the USAF funding/budgeting process and the U.S. Environmental Protection Agency (EPA) milestone/scheduling requirements. Because of resource constraints, funding is often not available to fully complete activities at a site. Follow-on effort is resumed when additional funding becomes available. Delays, inefficiencies and long-term increased costs can occur if funding is not timely. Often the scope of work must be reduced, the impact of which is felt most acutely during the RI phase. Due to the investigative nature of the RI phase, there are usually unknowns discovered in the field only after a statement of work has been implemented. New information necessitates the modification of tasks, reprioritization of sites, and often a different action plan. Such changes require additional funding. This implicit uncertainty, in concert with time constraints, makes it difficult to successfully execute and complete an RI on time and within budget.

The AFCEE has developed an approach to the restoration process normally involving two phases. The first phase involves the site and remedial investigation including the writing of the Record of Decision (ROD) or Decision Document (DD). The second phase involves the RD and RA. Contract mechanisms selected for the first phase need to provide a great deal of flexibility to address the uncertainties that may arise during this phase. Contracts used for the second phase can be those that are most suited to handling projects where there is a moderate degree of certainty. This two-phase approach is considered the most efficient and effective means of accomplishing the restoration process based on the existing contract capability. Future delivery strategies will provide for one contractor performing remedial investigation and initial project definitions and another contractor performing remedial action.

In some cases detailed plans and specifications may be required as a formal RD phase. This effort will be completed via a separate Architect and Engineering Services (A&E) contract.

Contract Information

Indefinite delivery/indefinite quantity (IDIQ) time and materials (T&M) contracts through which work is assigned to contractors by delivery orders are in place with full-service environmental firms. These contractors provide the full range of environmental services, i.e., PA/SI, RI/FS, environmental impact statements, treatability studies, pilot plants and interim remedial actions, which historically

were needed by ESR. ESR also has one contractor that independently oversees the other contractors, providing objective technical review. Work is assigned or orders issued to contractors on the basis of several factors: locale, capabilities, contract leveling (or balancing), customer preference, and contract ceiling. There are approximately 250 active delivery orders. Each IDIQ contract has a \$50M ceiling, with delivery orders against them ranging from \$100K to \$14M. These contracts have 5-year terms and have fixed, fully burdened rates for labor and for various types of analyses with reimbursement of the direct cost of materials and supplies. Rates are fixed for the entire 5-year contract term. These contracts were obtained by HSD/YAQ prior to AFCEE.

These IDIQ contracts were awarded and originally administered by the contracting office at Wright-Patterson Air Force Base, Ohio for the investigative phases of the restoration process. They were defined as "supply" contracts because a report was the deliverable. With the establishment of AFCEE, the contracts have been transferred to the contracting office at Brooks Air Force Base. There is also a plan to move all or part of a large cost plus fixed fee environmental services contract from Norton Air Force Base to Brooks Air Force Base.

A flexible (e.g., cost plus) contract is considered the most appropriate, even critical, contract type for the earlier, investigative phases of the restoration process which involves high levels of uncertainty. The T&M contracts have performed reasonably well and provide quick reaction time. However, they do require a significant amount of oversight and surveillance to ensure control of cost and schedule. The project team, consisting of the technical project manager (TPM), construction project manager (CPM), contracting officer's technical representative (COTR) and contracting officer/administrator oversees and controls cost, technical adequacy and schedule.

AFCEE is developing an acquisition strategy which will provide nationwide specialty technology based contracts, full service remedial action contracts and remedial design contracts. The RD and RA contractors are scheduled to be under contract during FY92. The RA contracts will be IDIQ, cost-plus contracts with projects issued to the contractors through delivery orders. The RD contracts will also be exercised through a delivery order mechanism, but fees will be established on a firm fixed price basis. These contracts will provide \$100M worth of design services and greater than \$2B worth of remedial action capability. AFCEE developed this strategy with substantial government and industry input, and will refine the strategy after obtaining experience from the use of these contract tools.

For the next generation of contracts, AFCEE is looking into other onsite monitoring sources such as the Defense Contract Administrative Service (whose charter is to do contract administration) and base personnel. A fixed-price contract was determined to be unjustified in light of the unpredictable nature of the work. A fixed-price contract might be appropriate if it had an avenue providing for unexpected items/activities that invariably arise. However, AFCEE has found that it is difficult in this area of work to get contractors to

perform work on a fixed-price basis when they are asked to rely on the results of a study performed by another contractor.

The AFCEE fosters a team approach in their contracting philosophy. Contractors are brought on board in the beginning, and contract specialists, TPMs, CPMs, and COTRs work together as a team. It is to the contractor's advantage to perform well initially and consistently. Multiple award of delivery orders depends on contractor performance, contract award is also performance based. Contractor payment is dependent on COTR review and validation of the work performed for that time period. Finally, close TPM/COTR/CPM monitoring and management ensure optimum scheduling and cost monitoring by the contractor.

Technical quality is maintained by oversight from peer review contractors in coordination with the project management team. Contractors' performance is documented in monthly report evaluations and periodic technical/contractual administrative reviews. To address technical changes in the scope of the work, control is maintained by the COTR with concurrence from the TPM and in consultation with the customer.

A significant advantage to the AFCEE is the recent co-location of the contracting staff with the program execution staff. AFCEE will operate a fully integrated program with contracting staff involved in planning the acquisition strategy to meet the program objectives. In the past the contracting staff did not participate early in the process and were not aware of pending requirements. Therefore, they could not plan for them. This inefficiency has been corrected and contracting capabilities expanded by adding contracting personnel fully dedicated to providing contracting support to the environmental programs in AFCEE.

On June 14, 1991, the Office of the Secretary of the USAF issued USAF Acquisition Circular 91-18, Item A-2 concerning IDIQ Contracts for A&E Supporting Environmental Requirements. This Air Force Acquisition Circular provided the authority for Major Commands (MAJCOMS) to deviate from Air Force Federal Acquisition Regulation Supplement 36.691 in order to establish higher limits for IDIQ contracts to acquire environmental study and remedial design requirements. The limit for the total individual contract amount shall be determined jointly by MAJCOM Contracting and Civil Engineering for HCA approval, with no delivery order size restriction, but the total of the A&E award fees shall not exceed \$200M on any contract including the basic and option periods. Where IDIQ contracts are used for environmental projects, the term of the contract may not exceed five years.

Technical Information

The selection of contract types is determined by a number of issues related to the nature of environmental restoration, namely the uncertainty and risk associated with environmental clean-up, as well as complex technical factors. The variety of contractual needs has been identified and satisfied through the aggressive development or progressive contracting strategies.

Innovative technologies, technology transfer, and technology development are seen as important vehicles for effective site cleanup in the environmental restoration arena. The AFCEE has the staffing and the contracting mechanisms to implement a variety of existing technologies and maintains the flexibility to offer contracting for new and innovative technologies as they become available.

With the expanded mission of AFCEE various contracting mechanisms can be utilized by the USAF community. These mechanisms will be more responsive, effective, and efficient in meeting the challenges of environmental restoration.

B.1.2 United States Army Corps of Engineers, Missouri River Division and Omaha District

Address: U.S. Army Corps of Engineers
Missouri River Division
P.O. Box 103 Downtown
Omaha, NE 68101-0103

Corps of Engineers, Omaha District
215 North 17th Street Bldg.
Omaha, NE 68102

Points of contact: Mr. Sherman Bollinger, Missouri River Division
Mr. Roy Singleton, Omaha District

Telephone: (402) 221-7497, S. Bollinger
(402) 221-7684, R. Singleton

Facsimile: (402) 691-4530, S. Bollinger
(402) 342-9416, R. Singleton

Size of organization: 38 project managers, 8 contract specialists

Background Information

The Missouri River Division was established as the Corps of Engineers Hazardous and Toxic Waste Design Center in 1982 as a result of an Interagency Agreement between the EPA and the Corps of Engineers. As a Design Center, the Missouri River Division provides program management and technical oversight for the HTW Program. The HTW work is executed by the Omaha and the Kansas City districts which are located within the Missouri River Division. The Omaha District is assigned work within EPA Regions 1, 3, 5, 8, and 9. The Kansas City District is assigned work within EPA Regions 2, 4, 6, 7, and 10.

The HTW Mission of the Missouri River Division is twofold and encompasses work under the EPA Superfund Program and the DERP. In the EPA program the COE is tasked with providing remedial design and remedial action capabilities for Superfund Sites. For the DERP, support is provided from the

preliminary assessment phase through the remedial action phase for both Formerly Used Defense Sites (FUDS) and active Army and Air Force sites.

Presently most of the HTW work through remedial design is executed by the Omaha and Kansas City districts. An effort is currently under way to decentralize the HTW Program. Under this program the Missouri River Division will assign HTW work to approved HTW Design Districts in other Corps Divisions in the geographic boundaries where the work is located. All HTW remedial action assignments are executed by the Corps District where the work is located.

The Corps of Engineers FY91 Environmental Restoration Program was \$752M and included support for DERP, BRAC, Superfund, and DOE. Major clients include the Air Force, Army, EPA, DOE, GSA, Resolution Trust Corporation, Department of Commerce, and the Federal Bureau of Prisons.

The Omaha District currently has approximately 375 HTW projects. Most of the projects are in the RI/FS phase.

Contract Information

The Omaha District uses a variety of contractual instruments to accomplish its HTW mission. When appropriate, for example, they will select an A&E firm and negotiate a fixed-price arrangement for a study, investigation, and/or design. Following completion of the A&E work, a service or construction contract will be issued on a competitive basis to accomplish the remediation. The Omaha District also has used a number of different pricing arrangements such as cost-plus fixed-fee, cost-plus award-fee, unit price, incentive, and different combinations of the above.

The Omaha District also has in place a number of IDIQ contracts covering both services and construction. They have three \$20M A&E contracts with a \$2M cap per delivery order. These contracts are for a base year and two option years. Four additional \$20M contracts are approved and will be in place soon. Four remediation IDIQ contracts are also in place. These contracts have a cap of \$50M but no limit on each delivery order. The basic contract is designed in such a way as to allow both services and construction and any type of pricing arrangement in a delivery order. These contracts are for a base year and four option years. Two similar types of contracts are in place to provide rapid response capability. These contracts are intended to provide for quick response and an interim fix whereas the contracts described above provide for permanent remediation. These contracts were initially established to support congressionally mandated Superfund starts but have since been expanded to support almost all types of HTW work.

The basic philosophy behind Omaha District's contracting mechanisms is to match the requirement with the contractual instrument that is best suited to accomplish the work in a timely and cost-efficient manner. The Omaha District tries to establish the scope of work as early as possible so they can maximize their effectiveness. Appropriate characterization of the site and early

acquisition planning is essential. Since all of the IDIQ contracts have been pre-competed, there is no need for a resolicitation of the immediate requirement. A contractor is selected from among the existing contractors and requested to supply a proposal for accomplishing the work. Negotiations are then conducted to establish the final scope of work and price. Professional reputation and the lure of continued work are the primary motivators for the contractors doing a good job. The Corps maintains a database on the performance of both A&E and remedial contractors. This information is used to evaluate contractors for future contracts. This performance information can also be provided to other agencies, thus a good recommendation in terms of performance is an important incentive for contractors.

A variety of pricing arrangements are used for contracts and delivery orders. If a fixed price is suitable, it will be used. Where unknowns exist, some other pricing arrangement such as cost-plus will be used.

Projects are typically received from the Missouri River Division. Funds are received by MIPR from the Missouri River Division or the customer.

Technical Information

As with many of the other agencies interviewed, the Omaha District said there were no specific, unique technical issues that would ever consistently play a major role in their contract selection. Specific technical issues and problems are grouped together then collectively addressed with concerns about uncertainty and risk. Project contracting strategy is then determined by a team approach between the project manager, technical staff, contract staff, legal staff, and the customer.

Standard key personnel clauses are included in contracts and delivery orders to ensure that contractors supply personnel they promised and keep the technical level high. The Omaha District and the Missouri River Division have a complete, experienced in-house technical staff that reviews all contract deliverables ensuring high quality work.

Proper qualification of contractors is also a key factor in helping ensure the success of their projects. Only those contractors with the best qualifications are selected as indefinite-delivery or site-specific contractors. Criteria for selecting an A&E firm includes professional qualifications, experience, completion capability, past performance, locations, and volume of DOD work. The project manager evaluates the contractor at the completion of the contract. This information is stored in the ACASS database. This past performance information is used when considering the contractor for additional work. An indefinite-delivery contractor is also evaluated at the completion of each delivery order. This evaluation is considered when assigning additional work to that contractor.

The Omaha District attempts to use the same A&E from the PA/SI through the RD where possible. They also try to use one project manager per base to maintain continuity between phases.

Scopes of work are typically developed in sufficient detail to define all requirements for a FP contract. The contract is modified or an additional delivery order is provided to cover changes. A cost-plus contract is only utilized when a detailed SOW cannot be developed and the magnitude of uncertainty presents too great a risk to expect the contractor to accept a FP contract. Specialized or unique new technologies can be addressed by using RFP contracting.

B.1.3 United States Army Corps of Engineers, Kansas City District

Address: 700 Federal Bldg., Room 731
Kansas City, MO 64106

Point of contact: Mr. Kevin Larson (Attn: CEMRK - ED - TS)

Telephone: (816) 426-6649

Facsimile: (816) 426-5949

Size of organization: 26 project managers, 4 contract specialists

Background Information

The Missouri River Division was established as the Corps of Engineers Hazardous and Toxic Waste Design Center in 1982 as a result of an interagency agreement between the EPA and Corps of Engineers. As a Design Center, the Missouri River Division provides program management and technical oversight for the HTW Program. The HTW work is executed by the Omaha and the Kansas City districts which are located within the Missouri River Division. The Omaha District is assigned work within EPA Regions 1, 3, 5, 8, and 9. The Kansas City District is assigned work within EPA Regions 2, 4, 6, 7, and 10.

The HTW Mission of the Missouri River Division is twofold and encompasses work under the EPA Superfund Program and the DERP. In the EPA program the COE is tasked with providing remedial design and remedial action capabilities for Superfund Sites. For the DERP, support is provided from the preliminary assessment phase through the remedial action phase for both Formerly Used Defense Sites (FUDS) and active Army and Air Force sites.

Presently most of the HTW work through remedial design is executed by the Omaha and Kansas City districts. An effort is currently under way to decentralize the HTW Program. Under this program, the Missouri River Division will assign HTW work to approved HTW Design Districts in other Corps Divisions in the geographic boundaries where the work is located. All HTW remedial action assignments are executed by the Corps District where the work is located.

The major workload of the Kansas City District is the Defense Environmental Restoration Program (DERP), and EPA superfund sites in Region 2. Kansas

City District also has a small amount of work with other agencies such as NASA, DOE, and General Services Administration (GSA) through the work-for-others program. DERP is limited to the Department of Defense and includes Army and Air Force work and Formerly Used Defense Sites (FUDS). The Kansas City District has over 100 projects in various phases of the cleanup process.

Contract Information

To accomplish their work, Kansas City District has a number of IDIQ contracts covering both service and construction that were competitively placed. Contractor selection followed the requirements of the Brooks Act. The CE-KC has two \$20M A&E service contracts with a \$2M cap per order, three \$9M contracts with a \$1M cap per order and two 1-year renewal options, and three 1-year remedial action IDIQ contracts for \$50M each with no maximum on order size and four 1-year renewal options. Work or tasks are issued to contractors on the basis of location of the site, contractor workload, past experience and performance, and past experience, if any, at the site. The District also uses site specific A&E contracts when appropriate and time permits.

The remedial action contracts were initially established to support the congressionally mandated "175 Starts." This mandate required EPA to begin remedial action at 175 National Priority List sites. These starts have since been completed, and the contracts are now being used for other hazardous and toxic waste efforts. Funds and projects are typically received by the Kansas City District from the Missouri River Division Headquarters.

The basic philosophy behind the contracting mechanisms is the idea that the type of contract they place the work under is dictated by the type of work desired (e.g., a study, design or service). The Kansas City District tries to establish this as early as possible so they can maximize their effectiveness. Since all of the IDIQ contracts have been pre-competed, appropriate contractors are in place to do the work once the type of work has been decided. Professional reputation, inter-contractor competition, and the lure of continued work are the primary motivators for these contractors doing a good job. The Corps also has the Architect Engineer Contract Administrative Support System (ACASS) database that allows them to store information about a contractor's performance for future reference.

The Kansas City District issues mostly fixed-price delivery orders/contracts for work that needs to be done. In situations where great uncertainty exists, they use options clauses extensively (both priced and unpriced). By using options, the entire contract does not come up for renegotiation (as it would if a modification were used), and new/current year funding can be used to fund the option. The Kansas City District has found that using fixed price for all aspects of work tends to limit their effectiveness because of the need to place so many options on projects.

Technical Information

As with many of the other agencies interviewed, the Kansas City District said that there were no specific, unique technical issues that would ever consistently play a major role in their contract type selection. Specific technical issues and problems are grouped, then analyzed collectively with concerns about uncertainty and risk.

Standard key personnel clauses are included in contracts and delivery orders to ensure that contractors supply the personnel they promised and to keep the technical level high. Assignments between program managers and contracts people are done on a basis of workload, rather than permanent assignments.

Proper qualification of contractors is a key factor in helping to ensure the success of their projects. By using IDIQ type contracts and pre-qualifying contractors, only those with the best qualifications are included for the work. Qualification criteria for evaluating contractors includes their expertise, location, management, continuity in project managers, size, and finances. As mentioned earlier, Kansas City District also uses the ACASS database, which stores information on past performance by a contractor for use in future evaluations.

An ideal contract, from a technical point of view, is one in which the level of detail is such that they need not include many options clauses. To this end, contracts are spelled out in as much detail as possible, to try to fit the framework of a fixed-price contract.

B.1.4 United States Army Toxic and Hazardous Material Agency (USATHMA)

Address: USATHMA
CETHA-IR
Aberdeen Proving Grounds MD 21010-5401

Point of contact: Dr. Robert York, Chief
Installation Restoration Program

Telephone: (301) 671-3618

Facsimile: (301) 671-1548

Size of organization: 71 people covering all aspects

Background Information

USATHMA is part of the U.S. Army Corps of Engineers division which serves the Army much like NAVFAC serves the Navy and HSD serves the Air Force. They do not work through Army Materials Command (AMC), but rather the Baltimore Corps Office, because of the recent reorganization of their function.

They are a total environmental service agency for the Army, established in the 1970s as "project managers": an organization authorized to cut through the red tape, lines of authority, and organizations to get projects done, and to be innovative and creative in developing avenues for project completion. Their only mission is environmental restoration for the Army; the projects they conduct do not compete with other businesses.

USATHMA is a centralized organization doing most of their work in the preliminary assessment, remedial investigation, and feasibility study phases. Major constraints on the organization include the following: 1) they are not allowed to get involved in remedial assessment or design, and 2) they can only work for the Army.

Contract Information

Projects for USATHMA are mission funded, meaning they are funded out of base overhead and do not require reimbursement for their services. USATHMA's contracting philosophy is that they provide a service to their clients (military bases) using proactive techniques and the belief that they are running a project not a contract. With this in mind, to help serve their clients, they try to keep the same contracts person and contractor together to develop a rapport and gain a better knowledge of the contractor's operations.

USATHMA currently has a pool of 23 qualified contractors from which to draw. When awarding work to a contractor, they consider such things as the contractor's geographic location, past experience, particular expertise for the situation, past performance, and current workload. Standard IDIQ procedures are followed to generate the original pool of qualified applicants.

Most of the USATHMA contracts are IDIQ contracts with tasks or orders issued on a cost-plus-fixed-fee completion or fixed-price basis. They also have Total Environmental Program Support (TEPS) contracts that are very generic in nature, covering a broad range of services and providing general support to all programs (CERCLA, RCRA, etc.), and a small number of 8A type contracts, as well as small purchase contracts, which fall outside the IDIQ arena.

Their IDIQ contracts were competitively placed following the applicable government procurement regulations and include a guaranteed minimum of \$1M for the contractor, and have a cap on the maximum number of hours which works out to a potential \$15M. Each contract has a 3-year ordering period with completion at 54 months, meaning that all orders must be complete within 18 months after the expiration of the ordering period. Cost growth is minimized by using standard cost-reimbursement contract control mechanisms wherever possible.

Technical Information

As with many of the other agencies interviewed, USATHMA said there were no specific, unique technical issues that ever consistently play a major role in

their contract selection. Specific technical issues and problems are grouped together and then collectively addressed with concerns about risk and uncertainty.

To maintain technical quality and excellence on a project wherever possible, they try to keep the same contractor through all the phases. As mentioned earlier, keeping the same contracts people and contractors together helps foster a better and more productive relationship. Mandatory training and certification is required for contracting officers, and monthly reports on contracts are obtained and reviewed by contracting officers, finance, and contracts. Statements of work for a contract are made as detailed as possible, while any uncertainties generated by lack of information are handled by the cost-plus-fixed-fee mechanism.

B.1.5 Environmental Protection Agency (EPA), Headquarters and Region VII Offices

Address: Kansas City, MO and
Washington, D.C.

Point of contact: Mr. Alan Wehmeyer, Region VII
Mr. Scott Fredericks, EPA/HQ
Mr. Mark Walker, EPA/HQ

Telephone: (913) 551-7336 or (913) 551-7739, A. Wehmeyer
(703) 308-8346, S. Fredericks
(202) 382-5020, M. Walker

Facsimile: (913) 551-7579 or FTS 276-7579, A. Wehmeyer
(703) 308-8389, S. Fredericks
(202) 245-3881, M. Walker

Background Information

EPA's CERCLA (Superfund Program) mission is to implement the requirements of the Act—to clean up hazardous wastes sites around the country, including industrial, state, and federal sites.

EPA's major activities include overseeing and enforcing the cleanup activities and the schedule of federal-, state-, and industrial-led site cleanup, and conducting and documenting cleanups of sites for which a PRP (potentially responsible party) cannot be identified. Extensive documentation is required to support EPA's efforts to obtain reimbursement from PRPs for cleanup. Generally the EPA and a federal agency enter into an Interagency Agreement that outlines the action and schedule for cleanup of a site(s). EPA also has an Interagency Agreement with the Corps of Engineers, which is actively involved in the cleanup of a number of federal sites, particularly DOD sites.

EPA is in the process of implementing a new, long-term contracting strategy for CERCLA. The strategy is intended to establish the contracting

mechanisms to meet the needs of the program over the next 10 years. The main points in the strategy are to develop an integrated approach to enforcement and site cleanup, create more contracting opportunities (particularly for small and small disadvantaged businesses) by reducing the size of and expanding the number of contracts, and improve project and cost management and oversight by decentralizing the contracts (assigning the contracts to the regions and giving the regions full responsibility for the contracts in their region).

Contract Information

EPA has established, on a regional basis, 45 cost-plus-award-fee (CPAF), LOE contracts with 27 remedial services firms (ARCS). The firms for these contracts were competitively selected under the requirements of the Brooks Act--their selection was based on technical qualifications. These contracts operate similarly to an IDIQ or BOA/TOA contract in that task releases are issued when work is identified and a task proposal is submitted by the contractor and reviewed and approved by EPA. The contracts include the terms and conditions governing the work to be performed, have a performance period of 10 years and a funding ceiling of \$150M, and have options in terms of hours (20,000/50,000/70,000 hr) for additional work. EPA obtained a waiver from the FAR council of the 5-year FAR limit on the maximum contract term and the prepayment requirements on construction subcontracts.

All phases of the cleanup process, PA/SI through RD/RA, are covered by these contracts. Remedial actions are subcontracted on a fixed-price, site-specific basis by the ARCS contractor to a construction contractor under these contracts. EPA considers it critical to the success of the RA that the firm conducting the RD oversee the RA to ensure that it meets the RD. Conflicts of interest are avoided because of the extensive oversight by the EPA and state, and the requirement that EPA review and select or approve all RDs. The Corps of Engineers handles the RD/RA phases, and EPA also has established the following contracts for other support needed in the cleanup process:

- TES contracts - Technical Enforcement Support contracts are CPAF contracts that provide support to the RCRA and CERCLA programs. These contracts are not decentralized--they are managed by EPA headquarters.
- ERCS - Emergency Response Cleanup Services Contracts are time and materials (T&M) contracts that provide 24-hour response times and are currently not decentralized.
- TAT contracts - Technical Assistance Team contracts are CPAF contracts and provide site assessment support for emergency removal activity.

The majority of contracts are on a cost-reimbursement basis. Information on the sites during these phases is not considered sufficient to scope an SOW in enough detail to contract on a fixed-price basis.

EPA, as a result of the SARA, provides indemnification with coverage that is limited to appropriations in the trust fund, which are sizeable. There is a policy proposed that would reduce the limits to \$50M, which contractors are indicating would not be enough.

EPA includes both the Service Contract Act and the Davis-Bacon Act clauses in their ARCS and decides their applicability on a site-by-site basis. There is debate between EPA and the DOL over the definition of professional and construction services; EPA has taken the position that the services provided under their contracts are professional services because of the specialized training/expertise required to conduct work in the HTW arena.

The "A&E Responsibility" clause is not included in EPA contracts though EPA feels it is a key tool for controlling contractor cost and work performance. This clause may not, however, be appropriate for EPA contracts since the Office of Federal Procurement Policy has held that this clause is only applicable to fixed-price contracts. Other key tools include the regular conduct of audits, the requirement for monthly reports of performance and cost, and the award-fee process.

Technical Information

EPA staff indicated that the most important site characteristic is the degree of hazard. Most sites have more than one contaminant, which typically makes the site more hazardous and more difficult to remediate. However, a site's characteristics are not considered key information in the decision as to what contract type should be selected. There are no specific, unique technical issues that consistently arise and impact contract selection.

B.1.6 Hazardous Waste Remedial Actions Program (HAZWRAP)

Address: P.O. Box 2003
Oak Ridge, TN 37831

Point of contact: Dr. Robert B. Craig, Director, HAZWRAP

Telephone: (615) 435-3102

Facsimile: (615) 435-3269 or FTS 355-3269

Size of organization: 75 project managers, 13 procurement staff

Background Information

HAZWRAP is operated by Martin Marietta Energy Systems, Inc. (Energy Systems), which also operates the Oak Ridge, Paducah, and Portsmouth Sites

for the DOE. HAZWRAP's mission is to develop, promote, and apply innovative and cost-effective hazardous waste management and environmental technologies to help resolve the nation's hazardous waste problems and concerns. HAZWRAP hopes to accomplish this mission by serving as an integrator for hazardous wastes and materials management across the federal government and by applying the R&D capabilities of the Energy Systems complex to address hazardous waste problems of national importance. Their objectives are to

- develop a full range of hazardous waste remedial action and management activities, including applied research, strategic planning, and applications
- become the federal agency focus for hazardous waste-related health and environmental risk management, pollution prevention, and environmental compliance
- transfer waste-related technology to federal agencies, academia, and the private sector.

HAZWRAP provides services to a variety of environmental programs including: CERCLA, RCRA, TOSCA, and NEPA. Major activities include: pollution prevention, environmental studies, waste operations, environmental restoration, technical demonstrations (and related R&D interface), waste information systems, and waste education and training.

For CERCLA and RCRA areas, the primary client is DOD which comprises about 70% of the taking for HAZWRAP. Of the DOD work, 80% is performed for the USAF, 15% for the Navy, and the remainder for other federal agencies. The balance of HAZWRAP business is in support of DOE-HQ for the Offices of Waste Management; Environmental Restoration; and Technology Research and Development Demonstration, Testing and Evaluation.

Work is conducted in all phases of the cleanup process, but is primarily (90%) in the RI/FS phase at this time. Remedial actions are conducted in cases of imminent threat to health and the environment, and for technology demonstration.

HAZWRAP has approximately 180 active DERA projects in various phases of the cleanup process and has completed more than 100 others.

Projects are assigned a project manager who leads technical teams consisting of in-house specialists, remedial services contracts, and resources matrixed to HAZWRAP from the Oak Ridge National Laboratory and other Energy Systems organizations on an as-needed basis. The contractors include those selected by HAZWRAP, as well as other contractors available from DOE Oak Ridge Operations.

Contract Information

Agencies access HAZWRAP under the provisions of the Economy Act. Several mechanisms are used to transfer funds between agencies: MPOs, MIPRs, AF^(a) project orders, and other similar documents. In addition, Interagency Agreements, describing the general terms for use of their services, are established between the agency and DOE.

Prior to accepting a project, HAZWRAP evaluates the work to determine whether or not it falls within the scope of the Interagency Agreement between the requesting agency and DOE. The project is also evaluated against the DOE work for others (WFO) acceptance criteria, and HAZWRAP's capability to perform the project. In the interest of the client, HAZWRAP considers it most advantageous that one contractor and one service center be used at an installation. HAZWRAP has deferred to another service center if work is already being conducted at a particular base by that service center.

The work authorization process begins with an initial discussion with the client to identify the needs and define a SOW. A proposal is subsequently prepared and submitted by HAZWRAP to DOE for review/approval, then forwarded to the client agency for its review and approval. When the client accepts the proposal, a funding document is issued to DOE, which in turn issues an authorization to HAZWRAP to begin the project.

HAZWRAP has established through a competitive procurement process, on a regional basis, 11 cost-reimbursement (CPFF), completion contracts for remedial services with a variety of environmental services firms. These contracts are similar to IQ/D or BOA/TOA contracts, eight are regional contracts, and three are used as alternates. HAZWRAP issues task releases or orders for work, after evaluating, negotiating, and accepting the contractor's task proposal received in response to an RFP. The task proposal outlines the work to be performed and includes a detailed estimate of the cost and schedule. Generally, the contracts are for a period of 1 year and contain four 1-year options to renew, and there is no minimum or maximum funding or ordering amounts in these general order contracts.

The firms selected for these contracts were done so on a competitive basis, consistent with the FAR. In selecting the firms, HAZWRAP considers their past experience, corporate and individual staff experience and commitment, and references. One of the key tools used to evaluate the firms' qualifications and experience is the requirement in the PFP that they work a sample site cleanup problem. This reveals all the key aspects of a contractor's approach to cleanup of a site.

(a) MPO - Memorandum Purchase Order
MIPR - Military Interdepartmental Purchase Request
AF - Air Force

The major incentives for quality contractor performance are the regular use of the alternate contractors, and, because of HAZWRAP's role in the HTW business, the opportunities for a significant amount of future work.

Schedule is often a primary driver in this area of work and these contracts enable HAZWRAP to initiate work rapidly while ensuring the required oversight and quality management. When schedule is not as critical, HAZWRAP will consider other contract types.

Other contract types used include the CPIF and CPAF, which are typically used when there is a federally mandated schedule, and the FFP for drilling, design, and analytical work.

HAZWRAP uses a number of 8A contractors in the work areas of PAs, compliance audits, small RIs, data validation, and paper studies.

Technical Information

There are no specific, unique technical issues or problems that consistently arise that influence contract type selection. What does influence the type of contract selected is the amount of information available on a site. The less information available the less HAZWRAP is able to define a SOW and the more they lean towards a cost-reimbursement type contract; the more information available, the more they are able to define the SOW for a fixed-price type of contract.

New or alternate technologies are investigated for potential use in site remediation.

B.1.7 Environmental Management Operations (EMO)

Address: 723 The Parkway
P.O. Box 999
Richland, WA 99352

Point of contact: Mr. Jim L. Jacobsen, Manager EMO Contracts

Telephone: (509) 376-6239

Facsimile: (509) 376-8105

Size of organization: 20 project managers, 10 contracts staff

Background Information

EMO was established by the U.S. Department of Energy, Richland Field Office (RL) in 1988 to provide technical and management services to the RL and other federal agencies. The services include identifying and assessing environmental remediation problems and providing effective and innovative solutions to those problems through

- effectively planning and managing short- and long-term environmental remediation programs
- demonstrating and applying innovative and advanced technologies
- implementing capabilities of full-service, private-sector contractors.

EMO is operated for the DOE by Battelle Memorial Institute (Battelle), a nonprofit R&D organization. Battelle also operates the DOE's Pacific Northwest Laboratory (PNL) at the Hanford Site in Richland under its Management and Operating contract with the DOE.

The bulk of EMO's projects (approximately 60% to 80%) are in the Comprehensive Environmental, Response Compensation, and Liability Act (CERCLA) arena, which is currently the largest program and the one with the most funding. Within the CERCLA program, work is primarily in the remedial investigation/feasibility study (RI/FS) phase. The balance of EMO's projects fall under the TOSCA, RCRA, and NEPA^(a) programs. EMO also has a number of projects in the underground storage tank (UST) area as well.

EMO provides a broad range of technical and managerial skills and services which are used to bring federal waste sites into compliance with environmental laws and regulations. These skills and services include the following:

- conduct preliminary assessments and site investigations (PA/SI)
- conduct remedial investigations and feasibility studies (RI/FS)
- prepare environmental documentation called for in the RI/FS process, including the Remedial Action Plan and Record of Decision
- conduct remedial designs and remedial actions (RD/RA)
- monitor completed projects to verify that the remediation goals have been met.

EMO's clients include the DOE, DOD, EPA, U.S. Department of the Interior and the Coast Guard. DOD is their primary client; and the U.S. Air Force (USAF) accounts for about 80% of their DOD work.

EMO has approximately 50 projects in various phases of the cleanup process at federal sites throughout the country. The majority of EMO's work is

(a) TOSCA - Toxic Substances Control Act
RCRA - Resource Conservation and Recovery Act
NEPA - National Environmental Policy Act

conducted from their Richland, Washington, facility, however, they have established project offices in various locations to be closer to projects near these areas.

Contract Information

Federal agencies access EMO's services through the RL under the provisions of the Economy Act. Several mechanisms are used to transfer funds between agencies: Memorandum Purchase Orders, Military interdepartmental Purchase Requests, Air Force Project Orders, or other similar documents. In addition, Interagency Agreements, describing the general terms for use of EMO's services, are established with the RL.

The work authorization process usually begins with an initial discussion between EMO and the client agency regarding the client's needs. A statement of work (SOW) or proposal is prepared and submitted to DOE for review/approval and forwarded to the client agency for review/approval, once DOE concurs that the work satisfies their criteria for acceptance of non-DOE work. When the client accepts the proposal, the client issues funding authorization to DOE obligating funds. The DOE commits the funds to the Battelle Management and Operating contract through the issuance of a Request for Services to EMO to begin the project.

EMO has nine master agreements for remedial services with nine environmental restoration firms; six of the nine agreements cover the performance of work in six different regions, the remaining agreements are used as alternates. The firms were selected for these agreements using a competitive procurement, technical source selection process that met the requirements of the DOE and EMO's DOE-approved procurement methods and practices. A sample site cleanup problem was used to evaluate the technical qualifications of firms, and was found to be very useful.

The master agreements are similar to indefinite delivery/indefinite quantity (IDIQ) or basic or task ordering agreements (BOA/TOAS) since work under these agreements is initiated by issuing task orders. Each master agreement includes the terms and conditions that govern the work to be performed under the task orders and has a term of 1 year with four 1-year options to renew. EMO is currently in the second year of these agreements. The master agreements do not specify a funding ceiling. Task orders issued under the agreements can be established on a cost-reimbursement or fixed-price (FP) basis. The majority of task orders, however, are established on a cost-reimbursement (CPFF) basis, since the bulk of work is in the RI/FS phase.

Usually EMO finds they do not have enough information about the site at the RI/FS phase to be able to develop a sufficiently defined SOW for a fixed-price task order. The contractors' subcontracts over \$25K must be reviewed by EMO. EMO ensures that FP contracts are utilized by their contractors whenever appropriate.

Pre-established master agreements allow EMO to 1) respond quickly and easily, and 2) tailor a task order suited to the site situation. The master agreements also allow them to maintain consistency in the contractors that work a particular site.

EMO finds that the following incentives promotes quality performance by their contractors:

- providing opportunities for follow-on work based on quality past performance
- conducting performance evaluations
- using master agreements which provide opportunities to build a working relationship with the contractor, and allow the contractor to see 1) their role more globally, beyond the current task order, and 2) the opportunity for a long-term commitment.

Technical Information

EMO staff indicated that they had not encountered any specific, unique technical issues that consistently arise and impact contract selection.

They did state that depending on the type of contract selected, the availability of information on the site is the biggest driver in the success or failure of the contract. Another driver is the use of new or alternative technologies. Because of EMO's relationship with PNL (both operated by Battelle), they are continually assessing new or alternative technologies during the RI/FS phase for use in remediating sites. Under these circumstances the contract type that has worked successfully is typically a cost-reimbursement (CPFF) contract.

APPENDIX C - SURVEY QUESTIONNAIRE

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C.1 INTRODUCTION

Thank you for taking the time to answer the following questions. The purpose of these questions is to give us a better understanding of your organization's mission, operations, environmental contracting process, and the impacts of the process on project performance, so that we may in turn develop an environmental contracting strategy document that is of maximum benefit to you. The overall focus of these questions is simply to help us determine what the common success and failure drivers are in regard to issuing and administering your environmental contracts and, with this in mind, we are trying to determine areas of commonality between organizations that might give us further insight. Please feel free to add any additional information that you feel might be helpful, or suggest areas, ideas, or items that we have missed that you feel should be addressed in answering the following questions.

C.2 GENERAL/BACKGROUND INFORMATION

1. *Describe the mission of your organization.* For example, how does your organization differ from others in such areas as focus, clientele, area of emphasis, etc., in the overall cleanup picture? What are the goals of your organization? Who are your major contractors or clients and what are their goals? What kind of a workload are you looking at as far as the number of cleanups you either have or would like to have? What is the cleanup schedule? What are your organization's and/or the contractor's/ customer's attitudes and feelings toward cleanup (e.g., they would like to do it all themselves, they would prefer to sub it all out, they want to do it one way but regulations or external factors are forcing them on a path that they would rather not be on, etc.)? Are there any external drivers or factors that are important in the operation or mission of your organization (e.g., regulations, geographic constraints, etc.)?
2. *Please briefly describe the major areas or phases that most of the work is performed in, and the areas of expertise that you feel your organization is strongest in.* For example, is most of the work in the Remedial Assessment (RA), phase, or has most of the work to date been in the Feasibility Study (FS) area? Are your technical/contracts people familiar with or have experience in all aspects of the cleanup process, or do they have one area in which they excel? What are the sizes of your contracts and technical departments? Are there any aspects of your organization that make you uniquely suited for work in a particular area?
3. *Give us an idea of the current contracting mechanisms that you employ (e.g., how does your organization work, in a broad sense?)* For example, do you typically award single or multiple contracts in a phase? Do these contracts go to one contractor or many? Are there aspects of your contracting mechanism that makes you unique from all other organizations, or are there external constraints put on you that drive the type of

contracting you currently are doing? Do you typically contract directly with the cleanup contractors or do you contract with a service organization who in turn contracts directly with cleanup contractors? Is there a prime contractor? Does the prime contractor have overall responsibility for subcontracting?

C.3 TECHNICAL INFORMATION

1. *How important is knowledge of the site characteristics with regard to the contract type chosen? For example, what physical characteristics are important to site characterization? Is there an order of importance or hierarchy to their aspects (e.g., we need to know thickness, continuity of layers first, then depth to water, flow direction, velocity, etc.). What characteristics (contaminant type(s), mobility, toxicity, etc.) of the source and its location (extent in soil and groundwater, concentration, and mobility) are important?*
2. *What were the technical areas or levels of detail in a statement of work that contributed to contract success or failure?*
3. *How did the experience, sophistication, availability, and expertise of a contractor contribute to contract success or failure?*
4. *How has existing or new technology contributed to success or failure of a characterization or cleanup effort? For example, did new technologies fail to perform as predicted, or were other options available and the wrong technologies chosen? Was time to implement a technology a factor? Was cost a factor?*
5. *Review the thought process you go through before initiating an environmental restoration project. What key questions do you typically ask yourself?*

C.4 CONTRACTUAL INFORMATION

1. *Please provide information on the key contract types used by your organization in environmental restoration projects. For example, what are the types used (FP, CR, etc.)? Where/how are they used (FP during RA phase and CR for RA)? Does one type work better than the other? Is one type favored over others? Does one approach work better than another (multiple contracts - one for each phase or fewer)? Are there external requirements that drive the type used? What are they?*
2. *Please provide information on the major types of Contractors and agencies your organization contracts with in your environmental restoration projects. For example, what are the key types? What are the phases that you typically involve them in (A&E during RA, etc.)?*

3. *Think about the contractors and organizations that you've used in the past and what you look for in selecting them. Please outline the important technical and contractual qualifications you look for in these entities. Which of these do you feel are typically lacking? Usually present?*
4. *Review the thought process you go through before you initiate an environmental restoration contract. What 5 to 6 questions do you typically raise to get the information you need to get started?*
5. *Briefly describe your contracting process/steps and schedule for placing contracts relating to a cleanup project. Do you have a written contracting guide or procedure for your environmental contracting? Are all staff sufficiently knowledgeable/trained in all aspects of the process; i.e., contracts staff are aware of and understand the technical requirements/constraints? Are the technical staff cognizant of the contracting process and requirements? What is your estimate of the number of contracts being processed at any one time? What is the average workload or number of contracts per staff member?*
6. *Think about the impediments you have encountered that adversely impacted the contracting process. What are they and what do you feel caused them? For example, was the structure/specificity of the SOW not appropriate? Were there problems with the contract type selected/used, its terms and conditions (e.g., insurance/indemnification, liability bonding/insurance)? Did you experience problems that resulted from the federal procurement requirements (e.g., Davis-Bacon, Services Contract Act, selection by competition/sole source, organizational conflicts of interest)? Were there inflexible changing, or conflicting regulatory requirements (e.g., Federal CERCLA/SARA, State-Brooks Act)? Were there impediments created by the threat of fines/penalties such as, unrealistic cleanup deadlines? Were there problems with the contractor(s) selected? Was there a change in contractors?*

Conversely, what things facilitate or positively impact the process?

7. *Think about the quality of work performed. What incentives cause contractor's to perform well? What causes poor contractor performance (contract type, fee, degree of responsibility, etc.)?*

C.5 OTHER

1. *Describe the services provided by oversight agencies. What are the pros and cons of having such agencies involved in the environmental contracting process.*

APPENDIX D - GLOSSARY

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ARARs	stands for Applicable or Relevant and Appropriate Requirements which are used in evaluating sites contaminated with hazardous waste.
Basic or Task Ordering Agreement	is an agreement or contracting mechanism that allows for periodic orders of supplies and/or services when identified and needed.
CERCLA	means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended.
Cost Plus Fixed Fee Contract	is a type of cost-reimbursement contract consisting of an estimated cost and a pre-established, agreed upon fixed amount of money for profit/fee that does not vary with the actual costs incurred.
Cost Reimbursement Contract	is one of two major categories of contract types (the other being fixed price) providing for payment of all actual costs incurred by a contractor associated with the delivery of supplies and/or services, generally including payment of a pre-established amount of profit/fee.
DERP	is the Defense Environmental Restoration Program, the general program for environmental cleanup of DOD installations.
Disposal	<p>a) is the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.</p> <p>b) is, intentionally or accidentally, to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB items.</p>
EMO	Environmental Management Operations. A U.S. Department of Energy organization operated by Battelle Memorial Institute. EMO provides environmental restoration services to DOE and other federal agencies.
Fixed Price Contract	is one of two major categories of contract types (the other being cost reimbursement) providing payment of a fixed amount of money or lump sum for a contractor's delivery of supplies and/or services.
FS	stands for Feasibility Study (see RI/FS).
Hazardous Waste	is waste as defined in 40 CFR 261.3.

Indefinite Quantity/
Delivery Agreement

is an agreement or contract mechanism providing for indefinite deliveries or quantities of predetermined supplies and/or services, when impossible to determine quantities or schedule in advance. Supplies and/or services ordered when schedule and quantities are known.

IRP

is the Installation Restoration Program, DOD's program to identify, investigate and clean up past disposal sites.

NPL

is the National Priorities List, the Environmental Protection Agency's prioritized list of uncontrolled hazardous waste sites to be remediated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), frequently referred to as the "Superfund."

PA/SI

is a Preliminary Assessment/Site Investigation, the first stage of the Installation Restoration Program (IRP) which is intended to identify sites potentially contaminated by hazardous wastes.

Restoration

is the act or process of accurately recovering the form and details of property and its setting as it appeared at a particular period of time by means of the removal of later work or by the replacement of missing earlier work.

RD/RA

is the design and implementation of the remedial action alternative selected in the RI/FS stage and documented in the decision document DD/ROD.

RI/FS

is a Remedial Investigation/Feasibility Study, the stage of the Installation Restoration Program (IRP) in which the nature and extent of environmental contamination at a hazardous waste site are determined and cleanup alternatives are analyzed.

ROD

is a Record of Decision. When used in the context of the Installation Restoration Program (IRP), it is an official document detailing the strategy for cleanup of a hazardous waste site.

SARA

stands for the Superfund Amendments and Reauthorization Act.

SC

is the Site Closeout, which is the stage where closeout has been decided and documented, and authorities have been informed of the decision to close out IRP actions.